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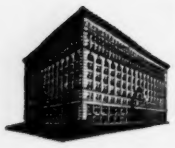

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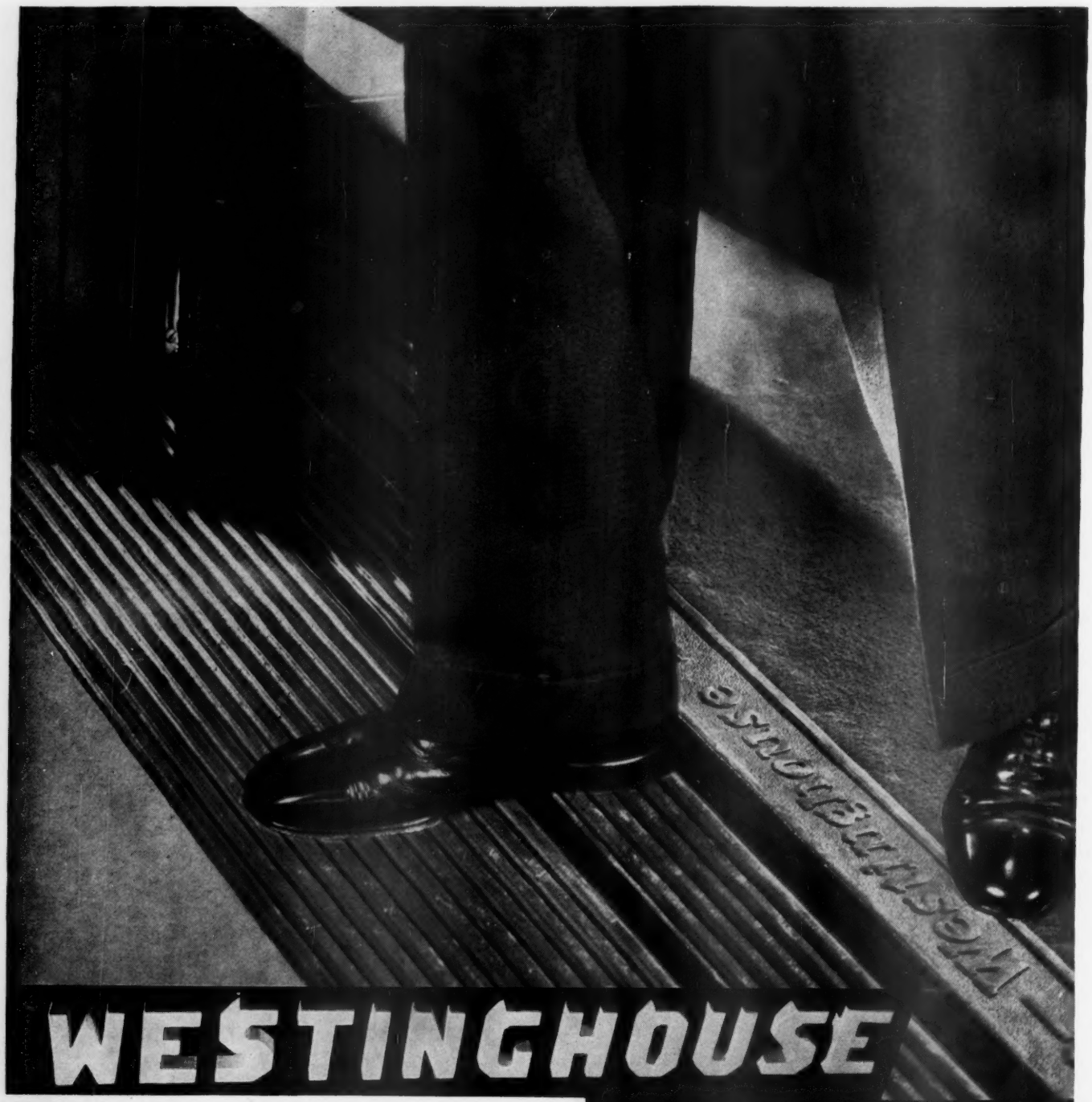

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THE AMERICAN ENGINEER

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J. C. VIEWEG, PUBLISHER ARTHUR V. SHERIDAN, EDITOR

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NUMBER 11 NOVEMBER, 1933

AGAIN THE CODE

New York State Society Has Not Approved

Statements to Contrary Incorrect

DESPITE information disseminated through various channels the New York State Society of Professional Engineers has not approved the Code as submitted to the Administrator in Washington.

A statement subscribing in principle to a Code, but objecting to various features in the present proposals was forwarded to the Deputy Administrator and to the American Society of Civil Engineers.

The Engineering News-Record of recent date carries information to the effect that the State Society has approved the Code, along with several other groups, including at least one that has but a comparatively small percentage of professional engineers in its membership. This was doubtless the information disseminated at Washington. However, the said information is incorrect.

One need go no further than read the complete article in the News-Record to realize that the Society had entered objections. Arnold Chapman, President, appeared in person at the public hearing and offered the objections noted in a previous issue of the American Engineer. The News-Record recorded but two of the five actually presented.

At a meeting of the Executive Board, Committee Chairmen and Chapter Presidents, held on Friday, October 20th, the objections entered by President Chapman were unanimously sustained and he was instructed to advise the authorities at Washington and the American Society of Civil Engineers to that effect. In addition to the previous objections the Board expressed disapproval of any definition of an Engineer, other than that he possess the legal right to practice, being applicable in a State wherein a license or registration law is in force.

The following telegrams indicate the position of the New York State Society and any statements to the contrary are inaccurate:

Albany, N. Y., October 23rd, 1933.
Honorable Malcom Pirnie, Deputy Administrator,
Room No. 4422, Commerce Building,
Washington, D. C.

Latter part first paragraph preamble stating printed professional engineers' code approved by New York State Society Professional Engineers is in error apparently through misunderstanding of code committee stop Our position on Article Six pages sixty-five and six stenographers record relative to committee representation not modified in conference These sections if unchanged materially affect view other portions particularly Article Five Subsection C stop We subscribe in principle to code but not to the present text which still embodies some objectionable provisions enumerated in September twenty-ninth telegram to Mr. Seabury and my representation at October ninth hearing.

ARNOLD G. CHAPMAN,
President, New York State Society
Professional Engineers.

Albany, N. Y., October 23, 1933.
Carlton S. Proctor,
120 East 41st Street,
New York City.

Reference yours twentieth with copy nineteenth communication to Pirnie stop State Society while subscribing in principle cannot approve code as printed Apparently misunderstanding our position at conference on ninth at which our position relative Article Six pages sixty-five and six stenographers minutes on question committee representation was not modified.

ARNOLD G. CHAPMAN.

While the proposed Code contains many provisions beneficial to the engineer engaged in private practice, it unfortunately offers no benefits to the employed engineer, beyond the hope that the private employing engineer will deal kindly with his professional associate whom he employs. It affords persons, corporations or firms who wish to exploit engineers every opportunity to do so. That unselfish practitioners will deal fairly, more than fairly perhaps, with their employees there is little doubt, but will corporations, which may employ numbers of engineers and engineering assistants on construction projects, be actuated by such motives as prompt the unselfish practitioners?

The employed engineer, and he includes everyone

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ACCREDITING ENGINEERING INSTITUTIONS

Engineers' Council For Professional Development

Issues Plan for Engineering Schools

ON October 10th the Engineers' Council for Professional Development met in New York and formed a permanent organization with Mr. C. F. Hirshfeld as Chairman and Mr. C. E. Davies as Secretary. Membership is composed of representatives from the American Society of Civil Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, the American Institute of Mining Engineers, the American Institute of Chemical Engineers, the National Council of State Boards of Engineering Examiners and the Society for the Promotion of Engineering Education.

The subject of accrediting engineering schools has been covered in a most comprehensive manner in a report which follows. Other recommendations appear elsewhere in this issue.

REPORT TO ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT BY THE COMMITTEE ON ENGINEERING SCHOOLS

Objectives of the Committee

To determine, first, the advisability and desirability of action by the Engineers Council for Professional Development in the direction of functioning as an accrediting agency of engineering schools; and second, if such a course seems desirable, to determine the basic principles which should underlie such a program and the most effective means for carrying it out.

Procedure

The committee has studied the procedures followed in other fields, especially in medicine, law and pharmacy, as well as those employed by the several agencies which now accredit engineering schools. The committee has considered carefully the advantages and possible disadvantages which might result from the accrediting of engineering schools by the Engineers Council.

The committee has reached the conclusion that, although there is room for a considerable difference of opinion as to the theoretical desirability of accrediting, the facts are that accrediting of engineering schools is being done by several agencies and there is little, if any, coordination in these efforts. No thoroughly representative and authoritative body accredits engineering schools at the present time. The Engineers Council for Professional Development is just such an organization and one of its proper functions should be to compose a list of institutions which, after careful investigation are found to be adequately prepared to offer sound and comprehensive instruction in the various major curricula.

The committee has drawn largely from the background of experience of several of its members in drafting the outline of the basis for accrediting and the questionnaire to be used in determining the necessary statistical information. The form in which these appear in the appendix is the last revision as made at a meeting held in June, 1933.

Statement of Policy

Some method of accrediting engineering schools is required by force of laws governing the licensing of engineers in a majority of the states. In order that accrediting may be done uniformly, consistent with the high ideals of the engineering profession and in such a manner as to be a stimulus to the best development of engineering education, rather than a deterrent to future progress, through codification of certain present standards, the National Engineering Societies should be invited to prepare and administer a plan of accrediting engineering schools. The following principles are suggested as the basis of such a plan:

Absolute minimum standards of the education process have been avoided as likely to fetter future progress. Information on important aspects of organization, administration, curricula and standards of each school is to be assembled, the institution personally investigated by a committee and final action taken by the Engineers Council for Professional Development after careful consideration of all aspects of the situation.

Because of the variety of types of engineering training and the specialized character of many schools, accrediting is done on the basis of six major curricula rather than for the school as a whole. Allowance is made, however, for consideration of other curricula than these six.

It is hoped that the accredited list to be prepared on these bases may be uniformly adopted, thus relieving societies and states from the necessity of duplicating individual action, and relieving schools from the necessity of submitting to numerous examinations and questionnaires.

The following paragraphs take up the various aspects of accrediting and the work of the committee under the headings:

1. The final revision of the basis for accrediting engineering schools.
2. The form of questionnaire which will be used to secure quantitative data.
3. Organization necessary to proceed with the investigation of schools.
4. Means of financial support.
5. Recommendations to the Council.
6. Others fields of activity for this committee.

(Continued on Page 12)

WINTER AND THE PUBLIC WORKS

By Alfred E. Smith

Reprinted from the October Issue New Outlook
(With Permission)

THE great $3,300,000,000 Federal public works program authorized by the National Industrial Recovery Act is at last getting into motion under the direction of the Secretary of the Interior. It is already clear that so far as he can control it, this program will be free from partisanship, pork barrel raids and improper influence.

What remains, however, is the basic question of actual results. One difficulty in giving this job to a cabinet officer, no matter how honest, competent and clear headed, is that he already has too much to do. Delays of one kind or another in getting the new organization started have already made it impossible to affect national employment materially until next spring. The loss of the summer months is fatal to public construction. If you lose the summer, you lose a year. The distribution to the several states of $400,000,000 for Federal highway aid through the usual channel of the Bureau of Public Roads at Washington, was supposed to function automatically. Unfortunately, however, most of the states were not ready to let contracts promptly because their engineering staffs had been cut down as a measure of false economy at previous sessions of the state legislatures. Preparation of designs and specifications therefore had to wait until the new Federal appropriations were made available. Other difficulties cropped up. Right of way difficulties have also complicated matters. As a result, only about one-fourth of the highway moneys have been allotted, and only about $35,000,000 in contracts has actually been obligated. Further, contracts will not be let until winter is upon us, with the inevitable result that the contractors will do nothing until spring.

The same thing seems to apply to United States government projects, most of the allotments for which are only just being made. When it comes to local projects of states and municipalities, semi-private corporations, such as water companies and housing corporations, the machinery set up by the Federal Administrator is only just beginning to function. Certainly these projects cannot possibly employ large numbers of people on anything but the fabrication of material until next May. The prospect, therefore, is that the Public Works program by itself will not do much to cure the unemployment situation during the next six months, and that unless other recovery devices accomplish unexpected miracles, we shall have to depend to a large extent upon public and private relief to see us through the coming winter and early spring.

In the meantime, here are some suggestions to speed up the program.

Some of the energy, enthusiasm, ruthlessness, and contempt for delay and red tape, not to speak of the publicity which has been devoted exclusively to business control by the Administration should be transferred to public works. After all, public works is also part of the National Recovery Act. Why not make the Blue Eagle a reward for those who make the best progress on public improvements and hire the most men?

The organization of the Federal Emergency Administration of Public Works is too complicated. There is no need of advisory committees in each state, and of regional advisers over several states. The engineer assigned to each state should be the sole agent of the Public Works administration in passing on projects in the first instance, and in supervising construction.

The rules of the Administration governing the employment of labor should be clarified. Under present rules, the re-organized United States Employment Service furnishes labor to contractors. Obviously labor should be recruited through the relief agencies, because otherwise men who do not need work will get it, and those who need it most will continue on the relief rolls. There is no sense in having two agencies each under Federal control and enjoying Federal subsidies, furnishing labor for public projects. The relief agencies were first on the ground and have spent an immense amount of time and money in preparing their rosters. Another matter which should be clarified is how skilled labor is to be supplied. The rules of the Administration require contractors in the first instance, before applying to the Unemployment Service, to attempt to obtain skilled labor from the nearest local of the appropriate trades union. Obviously the trades union locals should not be official recruiting agencies.

The Administration should make available, if it can be done under the present law, a fund of fifty million dollars to be distributed to the several states in accordance with the population, for the *design* of future public works of permanent value. These improvements should be of a statewide, or regional character. The allotments for plans should not exceed five per cent of the estimated cost of the projects. In this way, at the end of a year, at least one billion dollars worth of future work will be designed. The Federal Emergency Administration of Public Works need not commit itself in any way to the financing of these improvements.

There has been talk for years about advance planning of public improvements, about "deferring" public works, and about public works as a cure for unemployment. We have discovered that without designs and specifications, no amount of public money, no matter how great, will make *real*

(Continued on Page 12)

DEFINITIONS OF ENGINEERING

By R. M. Sanders, Chairman

National Association of Engineers

AN interesting and instructive booklet, containing definitions and duties of engineering designations, titles and positions, bears the announcement that it is published under the auspices of the National Association of Engineers, a comparatively recent organization whose aims are set forth as:

"The National Association of Engineers is an association embracing, in its membership, all branches of the engineering profession.

"Its primary objects—

"To improve the economic and social standing of engineers, by encouraging legislation favorable to this end, and by giving wide publicity to their achievements.

"To insure to engineers an equitable share in the profits from inventions made by them while in the employ of others.

"To help the graduates of our engineering schools through the 'junior' period between graduation and full professional standing, by assigning to each one a 'senior' engineer to whom the 'junior' may appeal at any time for advice.

"To protect the public from the granting of unfair and extravagant awards for public works.

"To establish engineering laboratories in the larger communities where its members may personally conduct experiments, tests and research work.

"The National Association of Engineers is worthy of your support. Your membership and your personal participation in its activities will help you, as an individual. Your efforts will help lift your profession to the high level which it has rightfully earned by united effort in research and applied engineering.

"Sign and mail the application today. This is your opportunity to become associated with a progressive and energetic group of engineers."

DEFINITIONS OF ENGINEERING

Additional copies may be obtained from National Association of Engineers, 103 Park Avenue, New York.

These definitions are copyrighted by the author.

INTRODUCTION

These definitions were prompted by frequent requests for a clarified explanation of the various positions held by Engineers in industries.

Engineering handbooks and modern dictionaries have not included in their pages a definite explanation of the positions or the duties and responsibilities of the Engineers holding these positions.

Junior engineers and senior engineers (those who have specialized in a particular field) have only a hazy idea of the duties and responsibilities of other engineers.

Laymen rarely understand the full meaning of the words Engineering, Drafting, Surveying, etc. The words Chief Engineer, Designer, Layout Man, etc., mean less to them.

It is hoped that these definitions will be helpful to every one reading them and still further give the reader a better understanding of the Engineer and his worth.

For small organizations it is advisable to engage the services of an engineer for the production of their products.

Engineers are best rated by the grade of their membership in the leading engineering societies.

Engineers and many others associated with manufacturing industries have asked for definitions of the various branches of engineering, together with an outline of the duties of these positions. Junior engineers have asked what are the duties of such positions as engineer, designer, layout men, etc.

Engineering: Utilization of natural forces and materials for the benefit of mankind. The following are definitions and descriptions of the various positions.

Engineer: Is one who is skilled in the science and practice of engineering.

Inasmuch as the present day utilization of the natural forces and materials is such a large task, it has become by natural evolution and progress divided into the following major divisions.

Automotive Engineer: Dealing with the design and construction and utilization of mechanical propelled mediums and inter-combustion prime-movers.

Chemical Engineer: Skilled in the art and science of preparation of material used in industrial chemistry; the design and erection of plants.

Civil Engineer: Skilled in the art and science of design, construction and maintenance of public works, roads, bridges, tunnels, canals, etc.

Electrical Engineer: Skilled in the art and science of the theory and practice of the generation, transmission and utilization of electrical energy.

Mechanical Engineer: Skilled in the art and science of design, construction and use of machinery.

Under the above divisions of Engineering, there have developed sub-divisions in positions or tasks to be performed by engineers. So we find that large organizations have such positions as Chief Engineer, Chief Draftsman, Research Engineer, Development Engineer, and Designing Engineer. Then there are subordinate workers with the titles of designers, or layout men, detailers and tracers.

Chief Engineer's position today in large organizations is an executive position of major importance. He is responsible for all the engineering

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PROFESSIONAL QUALIFICATION

Report of Council For Professional Development

A Comprehensive Program for Engineers

THE Engineers Council for Professional Development has issued a number of interesting reports, among which is the following:

REPORT TO ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT BY THE COMMITTEE ON PROFESSIONAL RECOGNITION

Purpose and Policy of Committee

The Charter of E. C. P. D. states:

The Committee on Professional Recognition shall report to E. C. P. D. methods whereby those engineers who have met suitable standards may receive corresponding professional recognition.

This Committee is concerned with the standards for entrance to the profession and the methods of establishing and maintaining them. If the profession is to improve the minimum professional and intellectual background of those servants of the public to be called engineers, it must itself establish high standards for those qualifications which will render the engineer a valuable member of Society. This involves emphasis on social, economic and general cultural training as well as the maintenance of high technical standards of education and practice.

While such a procedure will also improve the status of the engineering profession in the eyes of those who use engineering services and in the view of other professions and the public, the primary purpose of all the activities of this Committee is and should be directed toward improving the services which the qualified engineer can and must render to the public service.

To guide the Committee in fulfilling its purpose, the following policy was adopted:

The profession should establish as the goal of attainment, a series of qualifications for which the young man, whether graduate or non-graduate may successfully strive continuously from the time he enters upon an engineering career. This goal of attainment, embodied in a certificate, equivalent to the professional degree and having a value recognizable as adequate to entitle the holder to licensing or registration in a state, should be based upon the following features:

a. Certification should be earned, and not granted as a mark of honor.

b. The Code of educational qualifications should be more advanced than graduation from college, yet attainable by both college and non-college men.

c. The attainments should be tested individually by examination (written and oral) or the equivalent and not gauged by personal estimates and testimonials alone.

d. Educational qualifications should comprise scientific, technical economic and civic knowledge of a mature order.

e. The code of experience qualifications should normally make the age of certification fall between twenty-five and thirty.

f. The ultimate certification into the profession should be the objective to which both the colleges and the professional societies should exert their influence. To this end the colleges should be encouraged to aid by granting the professional degree to those who have been thus certified.

g. The certificate into the profession should be the means by which the state registration boards would with confidence recognize those essentials which they observe as requisite for the registration of the engineers.

h. And, similarly, the certificate into the profession should be prima facie evidence of technical proficiency for admission into the corporate membership of the Societies.

By such a progressive educational program involving selection of proper material, its supervised education, intimate contact with the profession during the apprenticeship stage and the attainment of definite specified educational requirements with concurrent recognition by professional societies, educational institutions, and state laws, it is believed that an identity would be attained by which those who have not developed experience and maturity of engineering judgment would be recognized as assistants in the engineering field and those who have attained engineering maturity would have an identity universally recognized by the profession itself and the public at large. It is believed that this definition of the engineering profession will be of immeasurable benefit.

Minimum Definition of an Engineer

The Committee reviewed the present standards of recognition embodied in the grades of membership of the participating societies, in the model law for registration and licensing of engineers and in the practice of awarding professional degrees. Lack of uniformity seemed prevalent in all these standards, and the need was apparent that the united profession must have a minimum definition of an engineer. The following was adopted for recommendation to E. C. P. D.

The minimum qualifications for an engineer are:

a. Graduation from an approved course in engineering of four years or more in an approved school or college: a specific record of an additional four years or more of active practice in engineering work of a character satisfactory to the examining body: (The examining body, in its discretion may give credit for graduate study in counting years of active practice) and the successful passing of a written and oral examination covering technical, economic and cultural subjects and designed to establish the applicant's ability to be placed in responsible charge of engineering work and to render him a valuable member of society: or

b. Eight years or more of active practice in engineering work of a character satisfactory to the

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GEODETIC WORK URGED

Needful and Helpful

E. W. Albrecht

BELIEVING that the efforts for a comprehensive geodetic survey meant greater consideration than has been accorded them the writer offers the following commentary upon the subject.

The practical advantage of "geodetic (horizontal) control" will at once be appreciated by non-engineers, when it is understood that co-ordinates —whether introduced as "geographical," "geodetic" and "spherical" or "rectangular and plane" or as "polar"—present a much safer and more perpetual manner of locating a point, or a distance or a direction on the earth's surface than will stakes, monuments or even structures. For, definite co-ordinates have only one unalterable and indestructible meaning, providing that such co-ordination was practised with due regard to all the factors, forces and causes which vouchsafe correctness and leave the results practically free from errors of the controllable class.

Conspicuous points, of course, like church spires, tall chimneys and high-towers, have, during more than 100 years of scientific efforts, been "geodetically" fixed in considerable numbers. Points of this type were selected by the U. S. Coast and Geodetic Survey—the highest authority in surveying questions because they are less liable to destruction. Their perishable nature, however, was well considered; they are, therefore, connected with one another by as many sights, interrelatively and correlatively, as physically possible, and have been located with reference to a system of unchangeable lines known as "meridians" and "parallels." We refer to the meridians when identifying a point on the sphere, or on the spheroid, by its "longitude" to the parallels, in fixing it by its "latitude."

From time to time the geographic position, i. e., the co-ordinates obtained from former observations are checked by members of the Geodetic staff. If found disturbed or changed they are corrected; if they have been destroyed their position can always be re-located, as long as the co-ordinates were conserved. It is easily accomplished with the help of undisturbed points to which the lost one had previously been related. Records are kept of any changes. Their causes, when not readily recognized, are made the object of further scientific studies. The systematic observation of certain kinds of changes have led to the discovery of important laws which subsequently had to be applied to the definite co-ordination. To this category belong: the deflection of the vertical, variations of the pole, reduction to sea level, lateral refraction, reduction to the spheroid, etc. They are the ultimate refinements. Instruments of the highest sensitiveness and greatest precision are employed to secure a highest accuracy of results in geodetic operation.

Geodetic measurements were initially undertaken to determine the exact dimensions of this planet. Geodetic data are being utilized as "element of control," since their further and more practical value lies in the controlling of the "lower order" of surveys, which latter ones are to fill in the area between the points of higher order and come within the domain of the county and city Engineer's professional concern. An essential role is thus assigned to geodetic operation as an organizing function in a civic program of constructive co-ordination.

Only too frequently views are being voiced according to which results of geodetic precision, or even better, could be attained by ordinary transit and chain-measurements. The incompatibility of such claims cannot be accepted seriously; they are generally offered by surveyors little familiar with the use and nature of geodetic data. Representatives of this type usually belong to a group that was successful enough to acquire economic independence, or at least a comfortable living, with only a most elementary knowledge of the simpler principles of surveying. Their attitude constitutes a grave obstacle to economic progress. It misleads and discourages the younger, technically well trained engineer by its tendency of portraying as useless the good knowledge the student has acquired through four years of sacrifice and stern devotion.

The urgent evolutionary demands of today are forcefully bidding for more adequate adjustments everywhere. There stands behind that intense pressure for improvement the deep phalanx of our younger colleagues, impetuous, vigorous and of keen intellect. They determinedly challenge the validity of the slogan: "Whom you know is more important in life than what you know." Indeed, no other conventional philosophy has ever been more pernicious to young men's morality and character, or more insulting to the mature man's intelligence and integrity.

AMERICA'S CULTURAL LEG

Because of such unsound preachings, it appears as though our much cherished cultural level is pitiably lagging behind that of other nations whose standards we are complacently taught to view from a decidedly higher plane. Yet, as long as scientific advancement is allowed to be used as a measuring rod of culture and civilization we may quote an interesting comparison. It will make us reflect on the practical consequences of our own ataxic condition.

The Mexican State of Yucatan, with a ratio of population (predominantly Indian) of only 22 people per square mile will furnish more correct

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PROFESSIONAL TRAINING

To Develop the Junior Engineer

Report to Council for Professional Development

THIS is the third recommendation issued in the form of a report by the Engineers' Council for Professional Development, which appears in this issue of the American Engineer.

These reports are of such value to the profession as to justify publication in full.

REPORT TO ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT BY THE COMMITTEE ON PROFESSIONAL TRAINING

Objective of the Committee. This committee is the third of the Council's four committees which are responsible for maintaining helpful contacts with the young man, from the time he begins to think about his life's career, as an applicant at the gates of his chosen engineering college, as a student and graduate, through his novitiate of practical experience and further intellectual development, until that time comes when he stands beside his fellows, fully recognized as a professional engineer. These contacts cover a spread of fully ten of the most vital years of a man's life. The Committee for Professional Training has for its objective the preparation of a program which will combine the early experience of the young graduate engineer with a plan of study and further intellectual development until he is qualified for full professional status. This work bridges the gap between graduation or its equivalent, and professional recognition.

Report of Progress. Early in the deliberations of the committee, it seemed apparent that the field which must be covered could advantageously be broken down into a number of specific efforts. In submitting this report of progress, these major subjects will be commented upon.

1. *Survey of the Junior Members or equivalent levels of constituent bodies of the Council. The information desired is numbers, names, location, educational and occupational background of such members, and some indication of their own plans for personal development.*

During the early spring of the present year, a small group of junior engineers of the Metropolitan Section of the A. S. M. E. agreed to fill out a brief questionnaire covering the points which seemed desirable for this survey. Appendix A gives the form of the questionnaire and a few comments on the results. While the information given is, to a degree, encouraging in indicating effort on the part of these individual young engineers toward their own self development, it is also clear that they could be greatly benefited by assistance in planning their development in a logical sequence. A good deal of the information desired is available in the files of the constituent organizations. Decision is still pending, whether or not to use the questionnaire method which has been experimented with.

2. *Preparation of a personal analysis blank which, when accomplished by an individual, will assist him in making a program for his future development.*

Much study has been given by the committee to the preparation of this blank. It has gone through a number of tentative revisions, based on an intensive criticism by numbers of competent persons. The draft attached as Appendix B, the committee still considers tentative, and desires further constructive criticism by the members of the Council before final revision. The committee, however, is of the opinion that some attempt on the part of young engineers to make a fundamental analysis of their own situation is vital to the orderly construction of a program of development.

3. *Survey of educational facilities in areas of concentration of junior membership as determined by survey under item 1 above. This determination of facilities will be focussed on more purely professional and technical requirements.*

Preliminary studies by the committee in this field indicate that there are educational facilities available for junior membership, of postgraduate nature, in the field of engineering. There is a large amount of information in regard to these facilities which the committee is assembling, and even now it is prepared to give definite advice to members in a number of areas throughout the country. The work in this field has to do with the analysis of this material and in resolving it into workable form. The types of facilities available include organized late afternoon and evening courses. There is also a rich field available through university extension and correspondence courses. While the committee does not desire to limit these special undertakings on the part of junior engineers to the purely professional field, it believes that the emphasis in these formal undertakings should be scientific and technological in character. Simply as an illustration of the type of material which is becoming increasingly available, there is attached as Appendix D a booklet entitled "Educational Opportunities of Greater New York and Northern New Jersey."

4. *Study of basic objectives for independent reading of Junior members. This study will be directed toward the preparation of reading lists of general import outside development requirements in the technological field.*

As a contribution to the general development in breadth and vision for junior engineers, an attempt

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General News And Comments

Informative Items

J. WALDO SMITH
Died, New York, October 14th
Age 72 Years

The death of J. Waldo Smith takes from the profession of engineering one of its greatest representatives and from the nation a sincere, lovable and respected citizen.

Born at Lincoln, Massachusetts, March 9, 1861, Mr. Smith began his career at the age of 17. Later pursuing his engineering education at Massachusetts Institute of Technology he laid the foundation for a long and distinguished career, the crowning achievement of which was the Catskill Water Supply System for the City of New York.

The New York Sun of October 16th contained the following editorial:

"Two features of the Catskill water supply system mark the enduring fame of Jonas Waldo Smith. When the works were begun there was no settled plan for crossing the Hudson. Designs had been made for a bridge to carry the aqueduct over the river from a point near Storm King Mountain to the east bank. Chief Engineer Smith worked out a daring scheme, but one that was supported by the best engineering opinion before it was resolved upon. He sank shafts 1,200 feet deep on each side of the river and connected them with a fourteen foot pressure tunnel driven through solid rock. It was the masterpiece of the stupendous undertaking which supplies New York with 700,000,000 gallons a day from the mountain streams that form the Esopus and the Schoharie creeks.

"Another brilliant feat was achieved in the plan for distributing the water from Hill View reservoir in Yonkers to the five boroughs of the city. Trunk lines of cast iron pipe and steel pipe would be the orthodox means, but Mr. Smith designed a tunnel in bed rock from the reservoir through The Bronx and Manhattan, under the East River to Brooklyn and thence used steel pipes to Queens. This delivery tunnel is seventeen feet in diameter and lies an average of 200 feet below the surface of the street. A second tunnel almost ready for use runs across the Bronx, under the river to Queens and joins the first tunnel at its terminal in Brooklyn. When this tunnel is ready for use the water can be shipped down either route.

"The money saved to the city by these two departures from engineering practice is estimated at many millions of dollars in original cost and a substantial amount annually in upkeep. No force but

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SELECTING ENGINEERING STUDENTS
American Association of Engineers Reports

Twenty million dollars annually are misdirected in attempting to educate engineering students who lack the natural qualifications to enter the profession, according to the findings of the American Association of Engineers.

The following article discussing this subject is recommended for publication by the A. A. E.

"Members of the engineering profession have an opportunity to take active part in an effort to solve one of the most serious educational problems that has ever arisen to affect its welfare and standing. It is by no means a new problem; but, under the abnormal conditions that prevail throughout the country, it has developed into an evil that calls for drastic measures of correction.

An investigation conducted under the auspices of the American Association of Engineers has yielded the startling information that some twenty millions of dollars are wasted annually in the United States in the futile attempt to qualify the indolent and incompetent for an education along engineering lines. The evil of overcrowding the professions, with its attendant evils of squandering money in educational costs and strewing "educational derelicts" along the path of progress, have been exploited and denounced in a general way, but now comes a direct challenge to the engineers to put their own house in order.

It has been shown by the investigation that about one-half of the entrants to technical institutions are disqualified and out by the end of the first year. It costs about $1,000 a year to attend such an institution, and the expense to the institution is as much or more. But not all flunk-outs are in the freshman year, and the longer the period the larger the costs.

Even more important than the vast economic wastage is the blighting effect on the lives of thousands of the youth of America who are left dazed, daunted, and disqualified on the very threshold of an opportunity which, rightly or wrongly, has appealed to them as the best, easiest, or only way to realize their hopes of a career. If it is their own dereliction, it is bad enough; if they have tried to the best of their ability, their plight is so much the more deplorable.

Such are the basic terms of the problem. By what method is it most feasible and practicable to approach the solution? Obviously, by drawing tighter the lines of admission against undesirables and by co-operating with high schools and other schools which are feeders for the higher institutions

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PUBLIC WORKS MONEY
By Gerald W. Knight, President
New Jersey Municipal Engineers' Association

Judging from recent Washington dispatches, the Federal Public Works Administration is desirous of allocating all of its funds for public improvements by the end of this year. The most optimistic interpretation that can be placed upon these dispatches is that the Administration is endeavoring to spur cities into greater action in the matter of making applications for loans and grants to finance desirable construction in the interest of unemployment relief. In other words, cities that are anxious to obtain Federal financing but which are proceeding slowly and cautiously with their plans may possibly expedite matters if faced with the threat that their applications may be received after the Federal funds are exhausted. It is well known that Washington is not satisfied with the rate at which worthy applications are being received.

It will be nothing short of regrettable, however, if the Federal Administration actually carried out its alleged intention to have the entire $3,300,000,000 fund allocated within the next two or three months. While no one can quarrel with the obvious need for getting practical construction under way so that there may be a great volume of practical employment, it must at the same time be admitted that certain worthy projects would have to be abandoned if undue haste is made in allocating the entire Public Works Fund.

Certain projects, such as roads, ordinary water works, sewerage systems and sewage disposal plants, require but a short time for the preparation of plans and specifications. It is quite possible and practical to speed up plans for ordinary construction which can accomplish a great deal in having men transferred from relief rolls to pay rolls.

There are, however, other projects, more far-reaching in importance and of greater significance to the welfare of communities, on which a considerable volume of preliminary work must be done before it is possible to reach the stage of plans and specifications. Long-range projects are harder to move and require a great deal of time and consideration. Some such projects are sewer and water systems in which several municipalities are concerned. In such cases there must be a central organization set up to administer to the multitude of major and minor details which, of necessity, require a great deal of time before actual planning or construction can be placed under way.

In many cases groups of municipalities or communities endeavoring to act in concert for economic reasons

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NEW YORK AND NEW JERSEY NEWS AND ACTIVITIES

MORRIS SHERRERD DIES

Newark, October 19th, 1933

Was President of N. J. Association of Professional Engineers

The death of Morris Sherrerd which occurred at the Union Club in Newark on October 19th was a distinct shock. A member of the club, as well as of the Newark Athletic Club, which owns the premises occupied by both organizations, he was found in a chair wherein but a short time previous he had been reading.

Mr. Sherrerd received his engineering training at Rensselaer Polytechnic Institute. At one time he was superintendent of construction for the City of Troy, N. Y. Later he became City Engineer of Peoria, Ill. After the War he was appointed Chief Engineer of the North Jersey District Water Supply Commission. He was Consulting Engineer to the City of Newark on Water Supply and a member of the Technical Advisory Board of the Port of New York Authority. Recognized nationally he served as a consulting or advisory engineer on a number of water supply and sanitary projects.

Mr. Sherrerd rendered splendid service to the profession of his state through his activities in legislative and other endeavors of the New Jersey Association of Professional Engineers. On March 15th last he was elected President of the Association, succeeding Mr. Arthur Noack. His passing is mourned by Engineers of New York as well as New Jersey.

The Board of Trustees of the New Jersey Association, at a special meeting called for the purpose, adopted the following resolution:

BE IT RESOLVED by the Board of Trustees of the New Jersey Association of Professional Engineers and Land Surveyors, that

WHEREAS an All Wise Providence has seen fit to remove from our midst by death, on the Nineteenth day of October, One thousand nine hundred and thirty-three-, Mr. Morris R. Sherrerd, President of the New Jersey Association of Professional Engineers and Land Surveyors, one of Newark's distinguished and respected citizens, and

WHEREAS this Board does feel that in the passing of Mr. Morris R. Sherrerd the State Society and the City of Newark have lost a valued executive and citizen, who throughout his public career and private life gave evidence of an admirable spirit of service which brought to him the profound respect of his fellow citizens, now

THEREFORE BE IT RESOLVED that this Board of Trustees does express to the family of Mr. Morris R. Sherrerd its deep sympathy in this hour of their bereavement and does record its sincere appreciation of the invaluable services rendered by Mr. Morris R. Sherrerd to the Association and to his fellow citizens, and

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the family of Mr. Morris R. Sherrerd.

ALBERT S. BLANK,
Secretary.
New Jersey Association of Professional Engineers and Land Surveyors.

To his family the American Engineer extends sympathy in behalf of the Professional Societies of both states.

NEW YORK'S SENIOR ENGINEER

Who Is He?

For more than a year the American Engineer has been receiving inquiries and comments concerning the oldest practising engineer in the State of New York.

On several occasions a sketch concerning the senior member of the profession in this State was about to be published when there came to the attention of the Editor information, oft times in the form of a protest, suggesting that the person about to be recognized was a mere tyro of some eighty (80) years or so.

However, the American Engineer is opposed to a policy of procrastination. Sooner or later the die must be cast and a choice made. Self preservation is Nature's first law, and accuracy is one of the engineer's greatest claims to recognition.

Who is the Senior Practising Professional Engineer of New York? Who claims the corresponding distinction in New Jersey? In order to make a definite announcement the American Engineer requests information on this vital topic.

The following letter, which has been in the files for some time, is offered as a coaxer to some of the young blades who practised the profession in the days when an engineer communed more with Nature and less with Man than he does to-day:

"Dear Sir:

There appeared in the Albany Evening News, Monday, Feb. 6th, 1933, an article stating that I claimed to be the oldest active engineer in the United States, and also of the New York State Society of Professional Engineers and Surveyors.

Now I never made any such claim, or even thought of such a thing, knowing that there may be hundreds of engineers and surveyors, in the United States, older than I am (77 years) and still practicing, and who have practiced many more years than I have. There is my good friend Charles Locke of Salamanca, Cattaraugus County, N. Y., whom I have known for the past twenty (20) years, he is 7 or 8 years older than I am, and has practiced many years more than I have. He started in 1879, giving him 54 years, while I did not begin until 1889. Had I been able to secure a job when I got out of school in the Spring of 1879 I would have practiced as long as he has. However, at that time jobs were as scarce as they are to-day, although there are five times as many engineers and surveyors idle to-day as there were practitioners in the State of New York at that time.

On Monday, July 17th, the

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MEMBERSHIP IN THE STATE SOCIETY

By A. Barnett Green

The following report, offered in letter form in the Kings County Chapter's Membership Committee, is so complete and so effective an outline of counsel as to warrant publication:

POLYTECHNIC INSTITUTE
OF BROOKLYN

October 4, 1933

Mr. A. Barnett Green,
439 Macon St.,
Brooklyn, N. Y.

My Dear Mr. Green:

This note is to congratulate you on your excellent work in adding thirty members to the Kings County Chapter of the New York State Society of Professional Engineers, since last May.

The president of our Kings County Chapter, Mr. Linford S. Stiles, is planning a drive to increase our membership. As chairman of the membership committee, I shall be concerned with the drive. As you have been so successful in your work in getting new members, may I ask you to give me a report, if possible before our first meeting, October 19, as to how you have approached engineers and

(Continued on Page 19)

Accrediting Engineering Institutions

(Continued from Page 4)

1. Basis for Accrediting

Inasmuch as there are movements under way at the present time in the direction of liberalizing the classroom requirements in certain engineering curricula, and for other reasons, it is not desirable to make any specification of the number of hours and credits which will be required in order that a curriculum may be approved. There should be no published prescriptions regarding curricula. A general statement of good practice with respect to hours, credits and so on should be distributed to the persons making visits for their confidential use.

2. Questionnaire

In appendix B appears the proposed form of questionnaire to be used in the survey of engineering schools for the purpose of determining those schools which should be approved. Although it is understood that both undergraduate and graduate curricula will be accredited, for the present the committee is considering only the problem of undergraduate curricula.

It is expected that the questionnaire will be filled in so far as is possible by the use of catalogues and other published information by the headquarters staff of the committee. The questionnaires will then be forwarded to the proper officers of the individual schools for completion and checking.

3. Organization

As a form of organization to carry out the actual accrediting of engineering colleges, it is suggested that seven regional committees be formed, the country being divided into districts, the chairman of the committee in each district to be a member of the committee on Engineering Schools of the E. C. P. D. These committees would report directly to the E. C. P. D. upon which would rest the responsibility for final action as to each institution. The E. C. P. D. might refer these matters to the committee on Engineering Schools for final review and recommendations. Each regional committee would be composed of 5 members, representing Civil, Mechanical, Mining & Metallurgical, Electrical and Chemical Engineering. A permanent staff headquarters with paid staff will be necessary for the handling of the statistical work and correspondence and to fill in the questionnaires as far as possible by the use of catalogues and other published information.

Provision should be made for the payment of travel expenses of the regional heads so that they may meet semi-annually. Such meetings will insure uniformity of standards in accrediting schools in the various sections of the country.

The members of the regional committees will make visits to inspect the various schools within their district. The cost of such visits should be borne by the institution visited. As stated elsewhere, the Council may, at its discretion, waive the visit of inspection to particular schools or in relation to specific curricula.

ASME ASCE AIEE AIMME NCSBEE SPPEE AICHE
Eng. C. P. D.
Com. on Stud Sel. & Guid. Co. on Eng. Sch. Com. on Prof. Train. and Prof. Recog. Com. on Regis.
Northeast South Middle Southeast Northwest Southwest Atlantic West

(Suggested form of Organization)

Each regional subcommittee should consist of five men including the chairman, selected to represent each of the five professional societies.

4. Financial Support

The committee believes that the matter of financial support is primarily the concern of the E. C. P. D. It is suggested, however, that support for such a project as the committee contemplates might be forthcoming from either the Carnegie Foundation for the Advancement of Teaching or the American Council on Education, particularly for making possible the initial survey. In the past the cost of similar surveys, usually about $150 per institution, has been charged to the school seeking recognition.

5. Recommendations to the Council

1. That the Engineers Council for Professional Development undertake a program of accrediting the several curricula of the various schools of engineering which are deserving of approval by the Council as representing sound and adequate instruction in various professional fields of engineering.

2. That the "Basis for Accrediting Engineering Colleges," as appearing in Appendix A of this report be approved by the Engineers Council as representing the basic principles which should underlie such a program of accrediting.

6. Other Fields of Activity for This Committee

The efforts of the Committee have thus far been directed principally toward the consideration of the problem of accrediting, the formulation of the principles on which a sound system of accrediting should be based, and a study of the most suitable type of questionnaire to be employed in securing the necessary data regarding each institution. However, the Committee is by no means of the opinion that its fields of useful endeavor are limited to this particular subject and it is considering other ways in which it may be of constructive service and will report in this connection at a later date.

Dean H. P. HAMMOND
Dean P. H. DAGGETT
Dean A. A. POTTER
Dean H. S. ROGERS
Dean G. M. BUTLER
Dr. H. A. CURTIS
(for Prof. E. P. MATHEWSON)
President K. T. COMPTON,
Chairman.

September, 1933.

* * *

Again the Code

(Continued from Page 3)

from the Chief Engineer to the lowest assistant of a firm or corporation, is unanimously in favor of aiding the employing engineer in private practice, but from the attitude of those who drew the Code, and they were almost exclusively private practitioners, this feeling is not reciprocated;—else the protests of employees would have been heeded.

One statement that is repeatedly made as a justification for failure to stipulate a decent minimum wage is that diversity of opinion makes impossible an agreement. This should be challenged as improper and incorrect. Those affected can agree. It is the employer who cannot agree on what he wishes to pay the employee.

The Code can be modified after adoption, though not so readily as some profess to believe. Perhaps opinion can be crystallized in the near future. Some features must be modified. Imagine the engineer, as a whole, forfeiting his rights as a citizen because of the transgressions of individuals. No corporation or individual has a right to subject an employee to a condition of virtual slavery. A private practitioner or a corporation may expand and increase his income without restriction. An employee must exist on perhaps as little as $15 a week. If employees are to be restricted from accepting additional work that will enable them to live, why not restrict employers to one contract.

The intent of a plan restricting a man on a full time basis to one job is acceptable, and under present conditions urgently advocated. No one questions the propriety of spreading work, and especially of preventing those who have work from competing with those who have not, whether fairly or unfairly,—now or in future. It is the phraseology that is in question. It is unAmerican and probably unconstitutional. It appears in no other Code.

The 95% of the profession, who are employees, should stand behind every endeavor to better the lot of the 5% who are employers. In all fairness, should the 95% expect less of the 5%. It is only by solidarity that the profession can advance. There must not be a division of the profession through the creation of employer and employee organizations. Let us maintain the status of the engineer as a professional man and let us all, be first engineers and secondly employers or employees.

* * *

Winter and the Public Works

(Continued from Page 5)

work. If the National Industrial Recovery Act will not permit such an allocation of funds, an amendment to that act to make it possible, should be passed as soon as Congress meets.

Comment: — The above proposals should appeal strongly to the Engineer, who has been directing attention to the penny wise, pound foolish, policy of cessation of public works and the lack of plan and preparedness for proper prosecution of work.

Definitions of Engineering

(Continued from Page 6)

work of the organization. The major qualification for the position of Chief Engineer should be a proven record of executive ability with men of the intellectual type. He must have an engineering and manufacturing background together with the ability to create and maintain a harmonious group of workers for the carrying out of the engineering program for the corporation. It is also his duty to keep the various departments of his divisions in harmony with the general business plans of the organization.

All the following men come under the direct supervision of the Chief Engineer.

Research Engineering: Is to make careful inquiry or investigation or examination in seeking facts of principal.

Research Engineers are engineers engaged in seeking facts or data which may or may not have any direct or immediate application to the products now being produced by the firm for which they are working. Material testing is sometimes assigned to the research engineer. Sales department, the manufacturing division and various other engineers have problems for the research engineers to investigate in connection with their duties.

Development Engineer (sometimes called experimental engineers): Development engineers are engineers responsible for all preliminary planning of new products, i. e., to go through a process of natural evolution or growth by successive change of less perfect to more perfect. It is the responsibility of the development engineer to keep posted on all new developments in this particular industry. It is the duty of the development engineer to experiment with modifications and changes in the present products of the firm, so that when sales conditions change which necessitates the introduction of new models or products, he is prepared to turn over to the Designing Engineer all the necessary engineering data, calculations, preliminary layouts and experimental models.

Designing Engineer: Is responsible for the engineering and specifications of the finished product. He is responsible for proper design, so that the product can be manufactured economically. All layouts for the finished products should have his approval before details are drawn.

Chief Draftsman: It is the duty of the chief draftsman to assign the work of making layouts and to supervise the detailing of same. All designers, layout men, checkers, detailers, tracers, material list clerks, blueprint and file clerks are under his direct supervision. It is the responsibility of the chief draftsman to see that all standards are followed in the making of details. It is also his responsibility to see that all changes which are reported are made on the details or assembly drawings and that the production engineer is supplied with new prints of these changed drawings. All requisitions for drafting room equipment and supplies should be authorized by him usually with the approval of the chief engineer. The chief draftsman is responsible to the Designing Engineer for his management of the drafting room.

Designers or Layout Men: Are men who are qualified by engineering training and experience to design or layout the designs for the construction of a machine or vehicle or building or unit from which the working details are produced. Men holding positions of designers or layout men are not responsible for the engineering of the machine on which they are working. They are expected to make accurate layouts. Their designs must be made in detail so that all points which have moving parts will have clearance. They must have a knowledge of shop practice in order to insure their designs being adapted to economical production. They should be given all the available data in reference to the work before starting on layouts.

Detailers: Are men educated in the elements of engineering who have had some experience. It is the duty of the detailers to make the working or shop drawings from the layouts. A detailer must know how to properly dimension his drawings. Detailers must be familiar with the engineering department's standards.

A detailer is not expected to make layouts except under the direct supervision of a designer who is training him for advancement to the position of layout man.

Tracer: Is a man who is studying for engineering work whose duty it is to make tracings of drawings on transparent paper or cloth from which blueprints are made. Tracers must know how to do neat lettering and do neat and accurate work in order to advance to the position of detailers.

Checkers: Are usually designers or layout men assigned to the task of checking all details, assemblies and material lists for errors which occur in the process of making working drawings. The checker's responsibility is to see that the specifications of the engineer are carried out on the finished drawings, so that when the shop receives a complete set of blueprints for any particular job that they will have the necessary instructions for the production of the machine or vehicle or other unit as conceived by the engineering division. Checkers are also responsible for the setting of tolerances in accordance with good shop practice. All layouts before going to the detailers for detailing should have the approval of the designing engineer. Checkers are sometimes assigned the task of checking layouts for the mechanical movements and clearances. However, the strength of materials, stress and other analysis is the responsibility of the designing engineer.

Production Engineer: Sometimes called process engineers or industrial engineers. Production engineers are responsible for all manufacturing planning; for design of tooling operations such as punch and dies, jigs and fixtures, raw and finished material conveyors. All specifications for new machine tools and plant layout come under his supervision.

Production engineers should be engineers with considerable experience in manufacturing with up-to-date semi and full automatic machinery. Experience in foundry, machine shop and tool making is also necessary.

All tool designers, detailers and checkers engaged in solving manufacturing problems are under the direct supervision of the production engineer. This includes designing engineers and designers assigned to the production of special machinery, i. e., semi-automatic and automatic machines for making or assembling parts. When the tool design department has five or more men in the department a chief draftsman should be placed in charge of the room. Time study and rate setters are under the supervision of the production engineer. The production engineering department should make suggestions to the Designing Engineer for changes in the product when such changes will reduce the cost of the manufacturing processes.

Sales Engineer: An engineer representing the engineering division in the sales field. It is the duty of the sales engineer to aid in the application of his firm's product to the problems of the consumer. It is the duty of the sales engineer to make reports of the performance of the product in the field. These reports are valuable to both the sales department and development engineer, and should be as complete as possible. It is also the duty of the sales engineer to make market researches and market analyses for the sales department. The sales engineer should report items of news value to the advertising department. He should prepare articles of interest for the trade papers. The sales engineer should develop new applications of the product, i. e., seek markets for the sales department. The sales engineer should not be expected to sell. He is really a good will builder. The more the sales engineer knows about the product and the application thereof, combined with the ability to educate the consumer, the greater will be the result from his work.

Civil Engineering has the following major engineering positions particularly applying to specialized branches of the civil engineering profession:

Bridge or Structural Engineering: The Engineer's duties and responsibilities are for the design, erecting and construction of bridge and structural works as applied to modern bridges and large buildings as found in our major size cities. The major qualification for this position should be a proven record of ability in design and erection. He must have had experience in handling mechanics in the field as well as members of the designing staff.

Tunnel Engineer: Is responsible for the engineering and specifications of the design and construction of tunnels, i. e., tunnels through mountains and under rivers for either transportation of freight or water.

Highway Engineer (or Road Engi-

neer): Is responsible for the engineering of design and construction of modern highways, culverts, highway bridges, etc.

Hydraulic Engineer: Is responsible for engineering and specifications for the design, erection and construction of water works dams, water driven power plants and sewerage disposal.

Railway Engineer: Is responsible for the surveying, selection, and laying out of right-aways for railoads, i. e., the construction of road beds and the laying of the ties, rails and cross overs, etc.

The above mentioned major engineering positions in civil engineering are the result of many years of specialization in the particular field which graduate civil engineers follow. Engineers are recognized as authorities or competent as the result of their past performance in their chosen field of specialization.

A sub-division of civil engineering which has not been covered elsewhere in this set of definitions is as follows:

Surveying: The art of measuring land.

All specialists in the field of civil engineering must have had surveying experience.

Chief of Party: Is the engineer in charge of the surveying party in the field. It is the duty and responsibility of the Chief of Party to carry out the instructions of the Chief Engineer. The party usually consists of the following men:

Transit Man: A junior engineer operating the Transit. Transit readings are usually checked by chief of party before recording.

Level Man: A junior engineer operating the Level.

Rod Man: It is the duty of the Rod man to hold the Rod for either the Transit or Level man. The Rod man usually makes the chain or tape readings.

Chain Man: It is the duty of the Chain man to hold the zero end of the chain or tape. It is also his duty to keep tape and chain in proper repair and clean.

Surveying parties usually have one additional man in the party whose duty it is to clear the way for transit or leveling work. This man as a rule has no engineering training and is called the axe man.

The Chief of Party, Transit men, and Level men are expected to prepare the reports of the work done in the field in such a manner to provide the necessary data required by the designing engineers in charge of the development of the plans for the projected construction work.

The definitions found elsewhere in this booklet for such positions as designing engineers, chief draftsman, etc., are applicable.

Chemical Engineering has the following specialized fields: Dyes, Metals, Paint, Leather, Ceramics, and Paper. The rapid stride of the chemical industry and huge size of some of the projects in this country has drawn many engineers from the ranks of mechanical and electrical engineers into the chemical industry to cooperate with the chemical engineer in the engineering, design and operation of large industrial plants by the demand for American chemical products.

Chief Chemical Engineer position today in a large organization is an executive position of major importance. The major qualifications should be a proven record of executive ability combined with a rounded out career in his specialized field.

Process Control Engineer: It is the duty and responsibility of the engineer in charge of process control to check and supervise the control of materials in the process of manufacture.

Product Control Engineer: It is the responsibility of the product control engineer to supervise the control of all raw materials and the routine testing in connection with same.

Research Chemical Engineer: It is the duty of the research engineer to make careful inqury or investigation or examination in seeking facts of principal. All research work is usually by the Chief Engineer of the organization.

Plant Engineer: It is the responsibility of the plant engineer to design, erect and superintend the construction of plant equipment. Usually plant engineers are mechanical engineers following a particular chemical industry. All power plant operators, refrigerator operators and maintenance crews are under the direct supervision of the plant engineer.

Laboratory Assistants are junior chemical engineers doing the routine testing of materials under the supervision of either the Process Control Engineer or the Product Control Engineer.

Laboratory Associates are usually junior chemical engineers assigned to investigate facts of principal under the supervision of the Research Chemical Engineer.

Electrical engineers will find by reading these definitions that the positions held by Electrical engineers in industries are the same in title as those held mechanical engineers. The duties and responsibilities are as explained under various positions, i. e., Chief Engineer, Research Engineer, etc.

Drafting: This word is used by most people without a real understanding of its true meaning. Drafting is the art of making drawings.

Drawing is a universal language which engineers use to convey their thoughts in order to produce a machine or vehicle or building or product utilizing natural forces and materials.

Were it not for the use of drawings we would not have automobiles, radios, subways, bridges, or the many other things which we are enjoying at this stage of civilization.

Draftsmen: Are men who are really engineers, or designers. Why not call them by their real titles?

The National Association of Engineers is an association embracing, in in its membership, all branches of the engineering profession.

Its primary objects—

To improve the economic and social standing of engineers, by encouraging legislation favorable to this end, and by giving wide publicity to their achievements.

To insure to engineers an equitable share in the profits from inventions made by them while in the employ of others.

To help the graduates of our engineering schools through the "junior" period between graduation and full professional standing, by assigning to each one a "senior" engineer to whom the "junior" may appeal at any time for advice.

To protect the public from the granting of unfair and extravagant awards for public works.

To establish engineering laboratories in the larger communities where its members may personally conduct experiments, tests and research work.

* * *

Professional Qualification

(Continued from Page 7)

examining body and the passing of written and oral examinations designed to show knowledge and skill approximating that attained through graduation from an approved engineering course and also examinations written and oral covering technical, economic and cultural subjects designed to establish the applicants ability to be placed in responsible charge of engineering work and to render him a valuable member of society.

Grades of Membership in Engineering Societies

Uniformity in the grades of membership of the various societies and conformity with the above minimum standard are logical and desirable. Accordingly the Committee agreed upon the following designations and minimum specifications to be recommended to the participating bodies of ECPD for the grades of membership.

Student Member

A person matriculated in an approved school or pursuing studies in accord with the program of the Committee on Professional Training.

Junior Member

A graduate of an approved school or one who has passed equivalent written and oral examinations.

Member

The full-fledged engineer who has passed the requirements in the minimum definition of an engineer.

Professional Degrees

In accord with the policy established above, the grade of membership, the license and the professional degree should be in substantial agreement with the minimum definition. The Committe urges that steps be taken to place this view before the faculties of engineering schools for

consideration so that in time the grades of professional recognition will be made uniform.

Approved Schools

Throughout this report the phrase "approved school" has been used with the knowledge that the Committee on Engineering Schools has the matter under consideration and that a scheme for accrediting schools will be forthcoming which would result in a list of approved schools.

Further Work of Committee

The Committee is fully cognizant of the fact that the minimum definition will not of itself raise the standard of the profession. The Committee is therefore bending its effort to a consideration of the mechanism, scope and content of examinations and other procedures for measuring the achievement of standards of recognition by the individual.

Recommendations

This Committee recommends that:

1. The policy be approved by E. C. P. D.
2. The minimum definition of an engineer be approved by E. C. P. D. and forwarded to the participating bodies for adoption.
3. The schedule of grades of membership be approved by E. C. P. D. and forwarded to the participating bodies for adoption.
4. E. C. P. D. recommends through S. P. E. E. that the faculties of engineering schools give consideration to the bestowal of professional degrees only to those who have attained the minimum standard.

The Committee on Professional Recognition
CONRAD N. LAUER, Chairman
October 9, 1933.

Comment:—The above merits the careful consideration of every Engineer. The program seemingly meets every test of usefulness. It is thorough, it is absolutely democratic and it will serve to afford the State the best talent obtainable.

* * *

Geodetic Work Urged

(Continued from Page 8)

and trustworthy information as to the exact location of properties, boundary lines, etc., and its tax-maps are a far more up-to-date and flawless record than our Empire State is able to present to a citizenry of 13,000,000 souls, with a ratio of population (predominantly white) of 256 people per square mile. The State of New York abandoned its triangulation program about half a century ago, turning it then over to the Federal authorities. The time and money invested in that work may today be regarded as a total loss. Washington could not proceed without the State's authorization. The Federal government, on the other hand, is quite willing and ready to assume about 50 per cent. of the cost arising from Geodetic operation, if a state should request such work to be done. There is only one chain of "quadrilaterals," made up of geodetic stations of Ist and IInd order, running through the Hudson River valley and joining the Greater New York area with the Canadian border. The absolute want of geodetic points, westwardly, up to the Great Lakes' region will be felt as a definite set back, as soon as modern economic means of mapping, via aero-photography, are embarked upon.

Aero-photography has been now perfected to a stage where actual maps—in the term's strictest application—can be constructed with little difficulty and quite mechanically, from the assembled photographs. The higher or lower degree of usefulness of such maps depends principally on the accuracy, with which distances and bearings joining points on the ground (or the "ground control") can be credited with, so as to admit their use as a "yard-stick" in the process of rectifying the distances and bearings between the same points on the photographic plate. Geodetic positions present excellent "ground control." For first-class maps they are indispensible.

Jungle Better Mapped

Economic needs of the present day impose a higher calibre of efficiency. The writer has, nevertheless, seen more accurate and more reliable specimens of maps of the jungle regions in South America than there are on record of the territory west of the Hudson River valley. Such unworthy and inadequate state of affairs exists, of course, practically all throughout the United States.

This condition is, in the first analysis, due to the pronounced indifference on the part of State engineers under whose jurisdiction questions of this order should come. The neglect and confusion the public will find reigning in matters concerning their profound interests may be explained in part by our engineer's utter disregard for the important place Geodesy occupies in the controlling of maps. Partly responsible—last, not least—is his manifest lack of determination or unwillingness to acquaint himself with an economic subject, which engineers in foreign countries, long ago, showed no hesitancy in applying constructively and successfully to the solution of their domestic problems.

Late in 1908, Greater New York completed a program of Ist and IInd order Triangulation — an excellent achievement of classical standing. Owing only to the efficient and wholehearted co-operation, throughout five years, of the Federal Geodetic Division, Chief Engineer N. P. Lewis of the City of New York was able to accomplish this. Neither the City's engineers nor anybody of the Title Companies are now using the data of those 181 geodetic stations. By a new order of things the private interests of the commercial groups mentioned would have been fundamentally affected—to public advantage, however.

Would Be Self-liquidation

The untenable and uneconomic state of affairs, depicted above, the continuous waste of energy and the want of organization renders opportune the suggestion, of laying before the State Government a project of sound, self-liquidating disposition and of logical constructiveness. Apart from the fact that a project of this nature will be financed up to 50 per cent by the Federal government, and that its realization, at once, will offer employment to thousands of well trained engineers, now idle, it should awaken a most popular response by reason of the following practical turn things would be given:

(a) A permanent centralization—with the help of geodetic primary and secondary control—of all lower control and detail work, into one continuous picture, correct in detail and correct as an integral part of the Territory of the United States.

(b) A division of each larger political unit (a State, f. i.) into several interrelated areas or systems of more or less equal extent, and controlled by rectangular-and-plane coordinates. The east-westerly (longitudinal) extent of each system should not exceed 110 miles.

(c) All detail surveys, of private or public objective, are to be carried out in terms of continuous, rectangular-and-plane co-ordination and be made an inseparable part of one system, as specified under b

Duplication of work, overlap and the selection of arbitrary and independent systems, by public agencies and private engineers will thereby be eliminated.

(d) All survey work is to be correct within itself and likewise relative to the established geodetic control of the next higher order.

(e) The formulation and codification of uniform standards of precision and of the limits of precision for the different grades of engineering work.

This will curb arbitrary individual decisions as to accuracy.

It has always been a subject of controversies between engineers.

(f) The formulation and codification of uniform methods operation in the field, as well as of the methods of calculation in the office.

Today every engineer and every public agency has its own methods of operation and of calculation, different from that the predecessor used.

There is even disagreement among public agencies in the same State as to the procedures best applied to the same kind of work.

(g) The creation of a Central Office in each County and also in the State's capital where work will be checked as to its conformity with the accepted standards of procedure and correctness, while a small fee could be charged for the filing, and for the obtaining of information by private parties.

Slip-shod, inferior or fictitious work will thus be excluded from the official files and records, in due course of time.

No pretense is being made, in the foregoing, as to perfectness of thought or of plans outlined: it is only desired to point at the need of the creation of a principle, i. e., of a more rigorous system to improve, any measure serving the security of landownership and thereby of the basis of public economy, order, peace and of national well-being.

Professional Training

(Continued from Page 9)

has been made to prepare a list of books in general fields of knowledge. A number of thoughtful people, most of them eminent in the engineering profession, were asked to submit lists of books, and the list shown in Appendix C is a compilation of the results of these recommendations. Again the committee does not feel that this list should be final, and invites criticisms looking toward deletions and additions for the improvement of this list, from members of the Council.

5. *Preparation of a bulletin which will include a synopsis of experience and further intellectual development demanded by the criteria set forth by the Committee on Professional Recognition.*

It is believed by the committee that a comprehensive presentation of a program of education and training which will clearly meet the requirements for professional recognition set up by the Committee on Professional Recognition should eventually be prepared. Manifestly, this portion of the work must await the decision of the aforesaid committee.

6. *Development of procedures calling for participation of member bodies, their divisions, regions, and local sections. Study of possibility of decentralized joint action on the part of subsidiary organization of the member bodies.*

Considerable conference and consultation has been held by the committee with the secretaries of the several constituent organizations, looking toward the development of these procedures which will have for the general objective enlisting the services of all senior engineers, through lines of Society organization, so that personal contact may be secured and a feeling of solidarity of interest developed throughout the whole engineering profession. Under this subject, study must be given to the best means for publicity and publication of the materials needed by junior engineers in their development programs.

J. C. ARNELL
CHARLES DERLETH, Jr.
D. S. KIMBALL
R. A. SEATON
A. D. SMITH
W. B. UPDEGRAFF
R. I. REES,
Chairman.

October 1933.

* * *

General News and Comments

J. WALDO SMITH

(Continued from Page 10)

gravity is required to carry down the water from the far point at Gilboa dam to the distant dwelling in Staten Island. For these benefits New York is indebted to Waldo Smith. His name should be written high on the monumental walls of Kensico and Ashokan."

The profession mourns the passing of one of its most accomplished and best loved figures.

Why not rename the Catskill Water Supply after J. Waldo Smith, a great engineer and a real contributor to human well-being.

* * *

Selecting Engineering Students

(Continued from Page 10)

of technical learning, with the purpose of giving to pupils of the schools a proper understanding of the requirements of these institutions.

In the technical school, dullness and laziness are especially serious handicaps to mass progress. A careful preliminary weed-out would not only be a welcome relief but a golden opportunity. It would be an incentive for new methods of work and study and even for an expansion of the curriculum.

A book recently issued under the auspices of the American Association of Engineers and entitled "Vocational Guidance in Engineering Lines" gives a comprehensive view of the situation as here outlined, and sets forth a definite and practical plan of combating the evils that are clogging the intellectual machinery of technical education and causing a monetary waste that is truly appalling. Having sponsored the book, the A. A. E. is now sponsoring a movement in line with its recommendations, and is endeavoring to obtain the cooperation of educators in bringing about results in the most expeditious and effective way.

This book might be called a crusaders' manual, but it is more than that. It is a volume of some 550 pages, which in character, purpose, diversity of material, and quality and variety of contributions from eminent members of the profession, is unique in engineering literature. It presents a composite of views and information on special engineering topics, together with editorial opinion on various subjects, and is so written that the veriest layman can read and understand. It is a qualifier or a disqualifier, an inspiration or a deterrent, for youths who have a hankering for an engineering career. It records in a general way the results of an investigation into educational conditions affecting the profession, with comments, suggestions, and recommendations. In character, purpose, diversity of material, and quality and variety of contributions from eminent members of the profession, it is unlike anything else in engineering literature.

As the guide and interpreter of the new movement, the book says that the main object is "to obtain, for the technical institutions of the United States of America, students of the best possible type, and to exclude therefrom by frank discouragement most of the usual unfit applicants for admission, whose name is legion."

This publication, like the cause it represents, is purely altruistic in spirit and purpose. It is not for sale on the bookstands, but may be had for the low price of $2.50 from the Mack Printing Co. of Easton, Pa., the publishers. It is printed in attractive style, arranged and indexed for convenient reference, and has fifty illustrations, mostly of outstanding achievements in various branches of engineering. The editorial committee which supervised its publication, consisting of Dr. J. A. L. Waddell, the late Frank W. Skinner, and Prof. Harold E. Wessman, began the actual work of preparation more than three years ago.

The direct objectives of the new movement are set forth tersely by Vic H. Housholder, President of the A. A. E., as follows:

"To prevent a great number of young men from making failures of their lives and developing in their minds an inferiority complex from having flunked out of a technical school, to improve materially in a few years' time the quality and efficiency of the men in the graduating classes of engineering, and to improve, later on, these same characteristics among engineers."

In energizing and spreading the new movement, engineering groups in various parts of the country are taking the book as a guide or text for lectures or informal talks before educational and civic bodies. There is a very large field for missionary work; and the members of the profession, with its welfare at heart, are regarded as the logical pioneers to sow the seed on fertile soil.

Educators contacted thus far by the engineers have shown a real interest and a sincere desire to be helpful. All who wish to participate in the movement can obtain full information by communicating with Dr. Waddell at his office, 142 Maiden Lane, New York City. He, himself, has been devoting much of his time to it and is anxious to obtain as many recruits as possible. As editor-in-chief of the book, he has been active from the start in planning and working for an aggressive, country-wide effort along organized lines.

"A great task devolves upon us," he says, "and never has there been an opportunity for the organized engineering forces of America to accomplish so much for the good of the public and the profession."

ARTHUR OLIVER.

* * *

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Annual Meeting

New York, December 4th - 8th

The 54th Annual Meeting of the American Society of Mechanical Engineers will be held during the week of December 4th in the City of New York.

A synopsis of the technical discussion has been released and is published herewith for informative purposes.

Additional details may be obtained by addressing the A. S. M. E. at 29 West 39th Street, New York, N. Y.

(Unless otherwise stated all events

will be held at the Engineering Societies Building, 29 W. 39th St., N. Y.)

TUESDAY MORNING, DECEMBER 5

9:30 a. m., Education and Training Session, Room 903.

9:30 a. m., Heat Transfer Session I, Room 1501.

9:30 a. m., Fuels, Auditorium.

9:30 a. m., Machine Design and Materials Handling Session, Room 502.

9:30 a. m., Water Measurement Symposium Session, Room 502.

9:30 a. m., Railroad Session, Room 501.

TUESDAY AFTERNOON, DECEMBER 5

2:00 p. m., Heat Transfer Session II, Room 1501.

2:00 p. m., Materials Handling & Process Session, Room 1101.

2:00 p. m., Symposium on Milling vs. Planing, Auditorium.

2:00 p. m., Applied Mechanics Session, Room 903.

2:00 p. m., Water Measurement Symposium Session, Room 502.

2:00 p. m., Railroad Division II, Room 501.

WEDNESDAY MORNING, DECEMBER 6

9:30 a. m., Industrial Power Session, Auditorium.

9:00 a. m., Lubrication Research, Room 502.

9:30 a. m., Management Research, Room 501.

9:30 a. m., Fluid Meter Session, Room 903.

9:30 a. m., Oil and Gas Power Session, Room 1501.

9:30 a. m., Textile Session, Room 1101.

WEDNESDAY AFTERNOON, DECEMBER 6

2:00 p. m., Lubrication Engineering Session, Room 501.

2:00 p. m., Steam Tables Research, Room 903.

2:00 p. m., Foundry Session, Room 502.

2:00 p. m., Management Problems of Industrial Recovery, Management Session, Auditorium.

2:00 p. m., Heat Transfer Symposium, Room 1501.

2:00 p. m., Creep of Metals, Room 1101.

THURSDAY MORNING, DECEMBER 7

9:30 a. m., Airship Session, Room 1501.

9:30 a. m., Central Power Station, Auditorium.

9:30 a. m., Stress Analysis Session, Room 502.

9:30 a. m., Metal Cutting Session, Auditorium—Stevens Inst. of Tech., Hoboken, N. J.

9:30 a. m., Economic Session, Room 501.

9:30 a. m., Iron and Steel Session, Room 1101.

THURSDAY AFTERNOON, DECEMBER 7

2:00 p. m., Central Station Session, Auditorium.

2:00 p. m., Air Conditioning Session, Room 501.

2:00 p. m., Mechanical Springs, Room 1101.

2:00 p. m., Engineering Education Session, Room 502.

2:00 p. m., Boiler Feed Water Session, Room 1501.

Frederick W. Taylor Celebration at Stevens Institute of Technology, Hoboken, N. J., Thursday, December 7.

* * *

Public Works Money

(Continued from Page 10)

must work out definite lines of procedure on location, character of improvement, size, joint financing, etc., before an application can be made for a Federal loan or grant. Such procedure invariably requires joint meetings over a protracted period of time. The very fact that projects of this nature are social betterments of the highest order and fit into wise long-range planning makes them slower to get under way. A dead line as to time should not choke off such projects.

Attention has been called to the fact that municipalities of western states seem to be getting their projects and applications under way with greater speed than is being evidenced in the eastern states. This is not necessarily to the discredit of eastern cities. The greater progress in the west may very well be due to the fact that the laws of the younger western states are more flexible than those of the longer established states of the east.

Having set up a great fund for public works the United States Government has raised the morale of contractors, engineers, architects, supply men and all other affiliated directly or indirectly with the construction industry which employs millions of men and women. If this fund is suddenly shut off the psychological effect may very well be bad. It is entirely conceivable that a speedy exhaustion of funds will throw a wet blanket over the entire Recovery program. It would seem better to move not too quickly in allocating all of this huge fund. Results which will be beneficial to all concerned can come only when deeper waters have been stirred, when the long-range non-Federal projects have been given a chance to mature.

* * *

ENGINEERS AND ARCHITECTS WARNED

Government Frowns on Legal Aids

Through American Engineering Council the Treasury Department has issued the following statement:

The Treasury Department will look with much disfavor on those architects or engineers who retain legal counsel in Washington to aid them in securing professional contracts from the Department; in fact, it will be the disposition of the Department to eliminate such architects and engineers from consideration altogether. This announcement was recently made by Assistant Secretary of the Treasury Robert who has requested the American Institute of Architects and American Engineering Council to make the attitude of his office widely known.

Early in the summer the Treasury Department learned that certain Washington lawyers had been soliciting engineers, architects, and others, interested in obtaining Government business, representing that to retain such counsel would enhance the opportunities of the engineers and architects to obtain desirable contracts. This activity has been particularly prevalent in western states.

The Treasury Department has not made the names of the lawyers who engaged in this practice public, feeling that probably they did not realize (1) that their proposal was in itself a reflection on certain Government officials; (2) that representation of the nature lawyers would provide could not possibly have any bearing upon the selections made by the Treasury Department.

The Department desires to make its selections on the merits of each case alone. There is no disposition on the part of the Department to prosecute any of the parties concerned, but it does want it emphatically understood that such a practice will be outlawed

* * *

CATALOGUE ENGINEERING

Another Practice to Combat

The following communications point out one of the evils that the Professional Engineer and Architect have to contend against.

The Engineer and the Architect will have to unite in their endeavors to eradicate abuses and enforce the intent of the N. R. A. in so far as it applies to their respective professions.

FLETCHER H. BURKE
PROFESSIONAL ENGINEER
677 Ellicott Square
Buffalo, New York
October 7, 1933

Attention of
Mr. Arthur V. Sheridan, Editor
The American Engineer
250 Park Avenue,
New York, N. Y.
Gentlemen:

Enclosed is a copy of a letter sent October 6th to the B. F. Sturtevant Company by the Industrial Planning Corporation and signed by Mr. L. A. Cherry.

The September issue of the American Engineer on pages 23-24 reprints a letter to the New York office of the Portland Cement Association sent by the New York State Highway Chapter, A. G. C. A. by Mr. Harry R. Hayes, Managing Director.

The situations are analogous. Such practices, in my opinion violate the spirit if not the letter of the N. R. A. It is unfair practice. Why should any manufacturing corporation be allowed to enter into engineering competition with licensed professional engineers?

I believe that engineers have at least one method of combating this practice, and I, for one, will use it.

It is to be hoped that The American

Engineer will lend every effort to put a stop to this unfair practice.

Very truly yours,
FLETCHER H. BURKE.

INDUSTRIAL PLANNING CORPORATION
ENGINEERS

Walbridge Building
43 Court Street
Buffalo, New York
October 6, 1933

B. F. Sturtevant Company
Hyde Park
Boston Massachusetts

Attention: Mr. C. C. Gray

Gentlemen:

We have received this morning your circular letter dated October 2nd calling our attention to an enclosed page taken from the September copy of the Architectural Forum. We had not seen this page, we are not subscribers to the magazine mentioned, and being engaged in consulting engineering practice we have not had need for that magazine.

We were very much surprised to note that the heading reads, "An aid to architects in laying out and writing specifications for air conditioning and ventilating, heating and vacuum cleaning equipment." On second thought we are not so much surprised, for there has been a growing tendency on the part of manufacturers to furnish all of the information necessary for architects to specify their products—the old so-called "catalogue engineering." We are well aware that anything we might have to say regarding that type of engineering would have no effect whatever on the general situation, but it is a practice which is unquestionably bad for nearly everybody concerned. (1) It enables the architect to collect a fee for engineering services which he has not rendered, and with such information furnished by manufacturers he must necessarily be biased to the extent that he would favor that company. (2) The owner is deprived of the benefit of disinterested advice, and which he could obtain from any reputable engineer. (3) From our standpoint, a purely selfish one, it is deliberately taking business away from the legitimate consulting engineer.

Engaged as we are in the practice of consulting engineering we are called upon regularly by salesmen from many companies. Acting as the agents of the owner, it is our business to design the work necessary as best we can, and choose the types of apparatus which are adapted to the owners' needs. In case that there is more than one product which will satisfy his requirements, as there generally is, it is our business to see that competition is allowed between comparable articles. There is no need to extend this argument further, as you are perfectly familiar with all of the details.

After reading your page it has caused us to wonder just what the position of the Sturtevant Company is toward consulting engineers. Will it solicit business from the engineer and ask to be placed on specifications, and at the same time give necessary information to the architects, as mentioned on the page enclosed? Also just what does this paragraph mean?

"Architects seeking complete data regarding any form of air conditioning equipment or in need of engineering cooperation are invited to make use of the unexcelled facilities and experience of the B. F. Sturtevant Company."

Yours very truly,
INDUSTRIAL PLANNING CORP.,
L. A. CHERRY.

* * *

A COMMENT ON FEES

As Set Up in Proposed Code

The following letter is published at the request of the writer.

CUCCI AND BROWN, INC.
CONSULTING ENGINEERS
347 MADISON AVENUE
NEW YORK

October 6th, 1933.

American Society of Heating
and Ventilating Engineers,
51 Madison Avenue,
New York, N. Y.

Attention of Mr. A. V. Hutchinson

Gentlemen:

As you know, the Writer was appointed a member of the Code Committee by the New York Chapter of the New York State Society of Professional Engineers of which Mr. John W. Pickworth is Chairman. I am familiar with the entire Code as written and our Committee has made various suggestions and changes among which was the request that provision for a fee be incorporated in the Code which was revised September 18th, to include this provision under Article 5, Paragraph 4, in which it is stated—"In the operation of this Code, before the establishment of engineering fees as above described, no engineer shall charge for his services, an amount, based upon the total cost of the work on which his services are rendered, less than that specified in the "Manual of Engineering Practice; No. 6. Charges for Engineering Services" adopted by the American Society of Civil Engineers, September, 1930, which is appended hereto."

After carefully checking over this Manual on September 26th I wrote Mr. Pickworth, our Chairman, as per the enclosed copy.

It seems to me that the Society of Heating and Ventilating Engineers would be making a great step forward in the interests of engineers in our field, if they would take up the question of the engineers' fees pertaining to mechanical, heating, ventilating, etc., which you will find if you read through the Manual, Page 7, No. 6, which is quoted as follows:

BUILDING CONSTRUCTION

"The modern building is a structure of which the engineering problems and solutions are of major importance. Engineers specializing in building construction:

a. Are engaged by the Owner to take entire charge of, and responsibility for, the planning, designing, and construction of a building. Architects being employed on the architectural and decorative features.

b. Are engaged by the Owner or an Architect for the engineering and design features.

"In the building field as in others, the fees depend on the magnitude of the work, the difficulty and elaboration involved, and the responsibility assumed.

"For complete charge of and responsibility for the plan, design, and construction of buildings of great magnitude, of simple type and detail, the rate on a "percentage of cost" basis is 5 per cent. For normal type buildings the rate is 6 per cent. For buildings involving complicated problems and elaborate detail the rate ranges from 6 to 10 per cent.

"If engineering services are engaged by the Owner or Architect for certain specified features, the extent of such service, conditions of employment, and responsibility for the work are specified in the agreement.

"As engineering service may extend to the electrical and mechanical equipment, ventilation, study of vibrations, drainage of the soil, foundations, etc., the normal rates for engineering service are not applicable in the field of building construction. A special classification is necessary."

At the end of this article you will find that it states—"As engineering service may extend to the electrical and mechanical equipment, ventilation, study of vibrations, drainage of the soil, foundations, etc., the normal rates for engineering service are not applicable in the field of building construction. A special classification is necessary." You will therefore see there is no definite fee set that the engineer should charge in our profession, namely, heating, ventilation, air conditioning, sanitation and electrical work. To my mind it leaves the question wide open for the engineers to charge any rates they may choose and therefore brings us back to the deplorable conditions that have existed for the past three years.

If nothing can be done to have a definite fee included in the proposed Engineers Code, then I feel that this question is of sufficient importance to be taken up at the time the National Control Committee is appointed to go into the question of fees for all engineering service. It seems to me that the importance that engineers in our line hold in the field of building industry as a whole and the importance of the engineering service in this field has been passed over too lightly. I believe something should be done to bring the engineers in our profession to the front in a prominent manner and also bring out the importance of the work rendered by such engineers.

If there are any questions that you would like to ask me regarding this matter, I would be very glad to call at your office and go over the whole subject.

Yours very truly,
V. J. CUCCI.

Ed: Mr. Cucci requests comments. Kindly forward the same to the address indicated in his letterhead or to the American Engineer.

New York and New Jersey News and Activities

New York's Senior Engineer

(Continued from Page 11)

Cemetery Superintendents of the State of New York, held their Convention in Jamestown, N. Y., and I had the pleasure of meeting David H. Merritt of Highland on the Hudson River, which is near Poughkeepsie. He is Secretary and Treasurer and Engineer of the Cemetery of that place. He is still practising his profession and has since he began in 1869 (64 years ago). He is 85 years old, only one year older than Mr. Locke. He is like a reference library to the younger engineer and surveyors who work in that vicinity.

Now if there are any engineers or surveyors in active practice as long as Mr. Merritt I would be glad to hear from them through the American Engineer or the New York State Society of Professional Engineers. Their experiences would be very interesting to us younger engineers and surveyors.

Yours truly,

(sgd) C. EUGENE BENTLEY

P. S.—I have the consent of Mr. Merritt to make reference to him."

C. E. BENTLEY.

* * *

Membership In the State Society

(Continued from Page 11)

as to what their reaction has been in regard to our Chapter?

With very best regards,

(signed) JOHN E. SETCHELL,
99 Livingston Street,
Brooklyn, N. Y.

THE NEW YORK STATE SOCIETY OF
PROFESSIONAL ENGINEERS
GRAND CENTRAL TERMINAL
NEW YORK

October Tenth, 1933

Professor John E. Setchell,
Chairman, Membership Committee,
Kings County Chapter,
New York State Society of
Professional Engineers, Inc.

My dear Professor Setchell:

Thank you for your congratulatory note on what you term my excellent work in adding thirty new members to the roll of Kings County Chapter since May; and, in compliance with your request for a report as to how I have accomplished this, so that it may aid you in furthering a drive contemplated by Mr. Linford S. Stiles, our President, I herewith submit a report showing—if I may quote Shakespeare, in Othello—by " . . . . what drugs, what charms, what conjuration and what mighty magic . . . . ", I have caused engineers to join their professional society.

In brief, engineers are men who want facts; they act when the facts are clear in their minds and when they see advantages. The Society's activities, or even its existence, has been vague in the minds of many. I, therefore, called the facts to their attention, clarified some misconceptions and invited them to join and co-operate. The results are as you show in your report.

Specific examples are always convincing; and, as a number of the members whose names I will mention, may be here at the meeting, the verification can easily be had.

My first call was upon Dr. Samuel Edmands, Director of the School of Science and Technology of Pratt Institute. Dr. Edmands received me very courteously and, after a little talk, said that he did not know just why he had not joined before, except that no one had specifically called his attention to the activities; and he was glad that I had come in. He filled out an application blank and stated that he was in perfect accord with the Society's work. I inquired if I might also see his instructors. He consented and added that I may even inform them that he joined and that he is in accord with its principles and aims. I saw his instructors, received an application from one and promises from others.

I next called upon Mr. A. S. Reynolds of George Weiderman Electric Company. Mr. Reynolds had not joined because he thought that practice was not sufficiently restricted to qualified persons and that the Society was not doing much about it. I showed him the new law restricting practice and he joined.

I called upon Dr. Albert L. Colston, Principal of the Brooklyn Technical High School—authority on design of high schools. Dr. Colston was pleased that I had come in and he filled out an application blank. He stated that he had received literature but there was some question in his mind, which now has been answered, and was therefore pleased to join. Dr. Colston asked me to come in again, when time permitted, and have a little talk on technical high schools and their design.

Then I called upon some engineers in private practice. They were pleased to have the information relative to the Society and signed applications to support it.

Another engineer, formerly an employee, but entering private practice, joined after a little talk on the welfare of the engineer.

Both the chief electrical and the chief mechanical engineers of the Brooklyn Edison Company, joined, as did also five others. They all mentioned that they had received literature but, somehow, had not been sufficiently impressed or moved to act.

Another engineer who had been vaguely informed of the activities, joined, after a little explanation, on my part, and ended by saying that he is realizing now that there is more to the Society than he had assumed.

A consulting engineer and also the chief engineer of the Eiseman Magneto Corporation, filled applications and appreciated my calls.

Most of the engineers with whom I have come in contact have been courteous and usually entered into a discussion of some engineering problem which they were, at the time, solving or some personal phase of engineering; they expressed pleasure at the calls and the information. These calls resulted in a deeper appreciation of what other engineers were doing, and in a kindlier feeling toward their fellowmen in general. Applications which were not given me at the time of my calls are following in the mail. The activity and interest created will be beneficial to the Society as a whole, and, of course, to the members individually.

In June I had called upon Dr. Erich Hausmann, Dean of the Graduate Studies of the Polytechnic Institute of Brooklyn, to inquire if I might speak to the professors who are licensed but not yet members—showing him a list of eight—there are eleven now. Dr. Hausmann readily acquiesced and even made the suggestion that the better time would be in the Fall. I have already begun.

There has been acquiescence and co-operation in general. Men have shown a kindly feeling and a good spirit after being made acquainted with the facts. Heads of engineering departments have readily consented to my seeing their employees. Dr. Edmands of Pratt Institute, where I again had occasion to call, because of a newly licensed instructor, offered me the use of the faculty bulletin board if I wished to post anything that might be of interest to engineers or the Society. My experiences, altogether, have been pleasant.

Another phase of the personal contact has been the off-setting of erroneous thoughts relative to the objects of the Society. Some of these thoughts would be ludicrous were they not so serious in their effect. One is that the Society is a Union promulgating strikes and causing the harboring of ill feeling between employer and employee. Another is that the Society is just another organization sprung up for no good reason as, apparently, all the work pertaining to licensing and restriction of practice and fostering of new laws is done by the national societies. Another is that the Society is an association for city employees only. I could enumerate several more, though minor assumptions, but these give the gist.

There are oppositions which are not the fault of the engineers themselves nor of misconceptions. Some engineers who work for contractors feel that the contractors would not like to have them join; the same holds true with engineers associated with architects. Others feel that their jobs in the public utilities are so assured that they do not need the Society nor even the State license. Others have financial reasons; in general, however, the thoughts are changing.

Another phase of going about is the request from qualified, but unlicensed, engineers for information pertaining to licensing and for license blanks. I

have given out many such blanks and considerable information. These men, when licensed, will come in as members.

To sum up, I want to say that the engineer is a man open to reason, but desires facts—his training has made him so; all of us are so; and if a fellow-engineer meets them, who is conversant with the facts and knows engineering problems, and the conditions, they readily lend an attentive ear and respond. It is my experience, in the many years which I have been in engineering departments of large public utilities—viz. the telephone, the electric light and the traction companies, outside of my contact with individual engineers, when in private practice writing engineering texts, that the engineer is human: he wants to advance; he wants to co-operate for mutual advantage. He knows how he has been overridden by those of less competence but more aggressiveness and, if given the facts authoritatively, he will put his shoulder to the wheel.

Let me suggest that, whatever means be adopted for strengthening the membership and therefore, the Society, that personal contact, by fellow engineers, be included as a major part of the program.

Trusting this gives you the desired information and wishing you every success in your contemplated drive, I remain,

Yours very truly,

A. BARNETT GREEN.

439 Macon Street,
Brooklyn, N. Y.

Comment:—Mr. Green was cited at the Annual Meeting of the State Society.

The American Engineer extends congratulations upon the splendid account rendered by so active a member of the Society.

* * *

NEW YORK CHAPTER NEWS

Raphael J. Smyth, Chairman Committee on Chapter Activities

BRONX COUNTY

A regular meeting of the Bronx County Chapter was held at the Concourse Plaza Hotel, on October 5th, at which Mr. Joseph F. Lamb, President of the Chapter, presided.

The guest speaker was Mr. Fred H. Zurmuhlen, President of Richmond County Chapter and Chairman of the Membership Committee of the State Society, who has distinguished himself for the success of his activities in the organization of Chapters throughout the State. Mr. Zurmuhlen described the remarkable expansion of the Society through the formation of new Chapters during the depression period when the activities and memberships of organizations, generally, have been declining. He gave convincing testimony that his zeal in the cause of the Society's growth is unabated by promising that two (2) new Chapters would be organized before the next annual meeting of the Society, and by challenging the Chapter to match his interest and activity by inscribing upon its roster the names of 200 new members before the same event. Mr. Zurmuhlen, who is well known and highly popular with the Engineers of The Bronx, was given a most cordial reception. And the Chapter gave every evidence that to Fred Zurmuhlen of Richmond "the latch string is always out."

Professor Alexander Haring, past president of the Chapter, was presented with a handsome onyx desk set as a memento of the period of his service in the Chair. A graceful presentation address was made by Mr. Raymond J. Van Wagner, Chairman of the Chapter Activities Committee. And Prof. Haring again demonstrated his mastery of pleasing speech in his acknowledgment which was notable for the excellence of its diction and the felicity of its expression.

Raphael J. Smyth, Chairman of the Chapter Code Committee, presented a report which recommended the approval of the September 18th revision of the Engineers' Code provided that the following important modifications be made:

(1) That the minimum salary for engineering assistants performing the lowest grade of sub-professional work be $30.00 a week during the four (4) months period pending the establishment of schedules of fair minimum rates, for all types of engineering services, by the State or Regional subcommittees of the National Code Committee.

(2) That provision be made for adequate representation of engineering assistants on the National Control Committee to properly effectuate the purposes of Sect. 7 (a) of the N. R. A. and Art. III of the proposed Code.

(3) That at least one-third of the personnel of the State or Regional Committees be composed of representatives of State Societies.

(4) That the National Control Committee be composed of one (1) member appointed by each of the national professional organizations which subscribe to the Code within 30 days after the date on which it becomes effective.

(5) That the definition of the functions of professional Engineers now contained in the Code be replaced by the definition contained in the New York State Law.

(6) That the functions of Land Surveyors be considered as the functions of Engineers, for the purposes of the Code.

(7) That the "Unfair Practices" provision which reads: "An engineer employed in a salaried position on full time basis shall not solicit or accept employment outside of his salaried duties in competition with other engineers, nor authorize the use of his name for the solicitations of such work. He may serve in a consulting or advisory capacity with the consent of his employer," be changed to read: "An engineer employed in a salaried position on full time basis shall not solicit or accept employment outside of his salaried duties in unfair competition with other engineers, nor authorize the use of his name for the solicitation of such work."

The report was approved unanimously.

The 7th recommendation evoked animated—even excited—discussion, and feeling ran high during its consideration. The point advanced in favor of this particular provision is that it would prevent employed Engineers from competing with employing Engineers in private practice and securing work by price-cutting and other reprehensible practices. The arguments raised in objection are, that it is

Unconstitutional: It would (a) reduce the employed Engineer to a subcitizen status by abridging his liberty of action, as compared with other citizens, outside of his hours of duty, and (b) degrade him to a condition of serfdom by giving his employer control over his (the employee's) economic activities for 24 hours a day;

Discriminatory: The Architects' Code (or other known Codes) contains no similar prohibitory provision;

Inequitable: Employed architects would be permitted to compete (in this State) for economic benefit with employing Engineers for Engineering work, and employed Engineers would be forbidden to compete in like manner;

Ineffectual: Some of the greatest abuses, complained of, occur in the field of Land Surveying where employed Engineers (principally in the public service) compete with private practitioners. The prohibitory provision would not relieve this situation. The practice of Land Surveying does not come within the purview of this Code. The employed Engineer, licensed as a Land Surveyor, could solicit and accept employment outside of his salaried duties in competition with Surveyors in private practice and not violate the letter of the Code provision.

It is undoubtedly true that some Engineers and Engineering Assistants are guilty of unfair practices. These abuses should be corrected, and corrective measures speedily devised. But it must also be realized that these corrective measures at any time will apply only to that small percentage of employed Engineers who engage in competitive practices outside their salaried duties. It is estimated that 95% of those engaged in the practice of Engineering are employees. To penalize all of these, as the Code proposes, to prevent malpractice by a small percentage of their number, is repugnant to one's sense of justice. And when the penalty goes to the extremity of depriving nearly the entire membership of a great profession, innocent of wrong doing or intent, of their rights as citizens, every resource of law and mind should be exhausted by the profession to prevent its adoption and application.

The Engineering profession is eager to support the N. R. A. in its declared policy "to provide for the general welfare" and "to eliminate unfair competitive practices" and in that eagerness is alert to prevent the introduction of provisions in Codes, established under its authority, which are not in consonance with its purposes and objectives.

NASSAU COUNTY

Nassau County Chapter is interested in the adoption of a New York State Society emblem. It has instructed its Secretary, Mr. Frederick W. Malkmus, to communicate its desire to the Society. Two communications to that effect have been received in a short period of time, the latest containing two designs, as suggestions.

The members of the State Society formally approved the adoption of an emblem in 1931. A number of excellent designs were prepared at that time by Mr. Ernest F. Fox, Financial Secretary of the Society. Difficulties developed, however, in the selection of a design which would be generally acceptable and one Chapter voted to lay the matter on the table. Morever, economic conditions were then, and have been since, unfavorable toward monetary outlays by Engineers who have suffered most severely during the depression, and no further action has been taken on the matter.

However, happier days are being speedily ushered in by the N. R. A., and it is hoped that the dream, long cherished by many, of a New York State Society emblem, will soon become a reality.

* * *

RENSSELAER COUNTY

Through the courtesy of Mr. Grant K. Palsgrove, Secretary-Treasurer of the Rensselaer County Chapter, a report has been received that thirty-six members and friends of the Chapter attended a dinner-meeting in the Troy Club, on October 17th. The meeting was presided over by Mr. J. M. Caird, President of the Chapter.

Mr. Arnold G. Chapman, President of the State Society and guest speaker of the occasion, eloquently urged intensification of activity toward expanding the membership of the Society to increase its power both for the protection of the public and for the advancement of the interests of the profession.

Mr. Gustave W. Paulson of Troy delivered a most interesting lecture on Sweden, once ruled by Bernadotte, that soldier of fortune, who, rising from the ranks of the French army to wield a marshal's baton, ascended to the throne of Sweden and Norway to reign as Charles XIV; the country whose tumuli at Upsala are the legendary burial places of Freya, Thor and Odin, deities of the Norseland; the land whose sagas inspired the majestic genius of Wagner, and whose people, when Aurora lights the northern sky, still vision the Valkyrs—the beauteous hand-maidens of Odin and the "Choosers of the Slain"—sweeping across the heavens in meteoric flight, bearing in triumph on their steeds of fire the warriors who go to dwell forever in Valhalla's sword-lighted halls.

* * *

NEW YORK COUNTY

Mr. F. A. Rossell, Secretary of the New York County Chapter, has forwarded the following report of the activities of the New York County Chapter:

"Recently the City Work Bureau of the Emergency Work and Relief Administration of the City of New York issued a Manual showing the functions of its various units. When these functions were analyzed it was found that some positions could only be filled by licensed professional engineers and the Manual was changed accordingly by the following excerpt: "All technical agents and inspectors shall preferably be licensed professional engineers in New York and shall, so far as practicable, be appointed from the lists of destitute and competent persons certified as such by the Home Relief Bureau, or by the Professional Engineers' Committee on Unemployment, or by the Architects' Emergency Committee."

Later in the Manual: "Inspectors shall be selected, so far as practicable, from the Professional Engineers' and Architects' Committee on Unemployment."

This move was duly sanctioned by the Chapter and the change made in the Manual was appreciated by the Society.

Later five Borough Division Technical Agents were appointed and it developed that only two were licensed professional engineers but the others were to apply for their licenses in due time. All technical agents are under the supervision of a Field Manager.

Attention is called to an article on page 2 of the New York Times of October 20th, 1933, calling attention to conditions in the City Work Bureau. It should be the duty of all engineers to see that the laws relating to the practice of Civil Engineering should be rigidly carried out and every effort made to place licensed professional engineers in the above mentioned job."

* * *

WESTCHESTER COUNTY

The following report has been submitted by Mr. Andrew M. Anderson, Chairman of the Publicity Committee of the Westchester County Chapter:

"At a very enthusiastic meeting of the Westchester Chapter of the New York State Society of Professional Engineers, held October 11th, at the County Court House, White Plains, Mr. Carlton S. Proctor, of Bronxville, the Chairman of the Code Committee, appointed by the American Society of Civil Engineers under the authorization of the National Construction League, outlined the development of the Code for submission to the National Code Administrator at Washington.

The Code, Mr. Proctor pointed out, must be national in scope and cannot settle at once local problems. The National Recovery Act seemed to ignore professional men, and because a great many engineers are engaged in the construction industry, the need for a Code for engineers and architects was soon felt. Upon the presentation of the general construction Code, which has not been approved as yet, a ruling by General Johnson was made that the construction industry must be considered in the whole. It was Mr. Proctor's task to coordinate existing and proposed Codes in so far as they apply to the engineer in the construction industry. He called for representation from all existing engineering bodies and asked them to submit their views on a Code. He was handicapped in this, because of local problems which must be handled by the small units. In order to be recognized by the NRA Code Committees the organization must prove that it is representative nationally of the engineering profession.

Mr. Proctor explained that the engineers' Code and that of the architects were in direct conflict in many places and both professions agreed to work along parallel lines. Other conflicts arose owing to the fact that the engineers' Code has more than sixty Codes feeding into it. All these Codes must be coordinates. In the case of the cooperation with the architects Mr. Proctor felt that the Committee had done a tremendous task in limiting engineering work to engineers, and architecture to architects. He pointed out that only buildings designed by competent engineers had withstood the earthquake in Long Beach, California. Other buildings, including public buildings, which were not designed by engineers were complete losses. A survey, executed at the time of the recent earthquake, brought out this fact.

The Code was given a hearing on October 9th at which time there were amendments offered. Mr. Chapman of the New York State Society of Professional Engineers asked for representation on the regional Committee. The Federation of Architects, Engineers, Chemists and Technicians, which Mr. Proctor believed is affiliated with the American Federation of Labor, objected to the Code on the ground that no mention of salaries and fees had been made. After conferring with all organizations, there was a general agreement that it was impossible in the time allotted to the Committee to formulate a Code of salaries and fees which would cover every locality and every branch of engineering. This question of minimum salaries and fees, and maximum hours must be taken up by regional committees who will enforce the Code. These regional committees must present their schedules within four months after the Code has been approved.

It was the opinion of the speaker, and of Malcolm Pirnie, who will be in charge of approving the general construction Code, that the engineers' Code will be the most complex of all the Codes which will be submitted under the NRA. He pointed out that the engineering profession should encourage the Federation of Architects, Engineers, Chemists and Technicians, instead of discouraging them because they are sincere men and have the interest of the engineering profession at heart. They are determined that the engineer will not be exploited and that any exploitation now existing must be stopped.

When the Code has been approved and adopted, it will become law and any violations of the Code will be punishable by maximum term in prison of six months, or maximum fine of $500 or both. The adoption or approval is expected within two weeks when it will be given a hearing before the administration.

Although Mr. Proctor had been talking for two hours, he agreed to talk about the San Francisco-Oakland Bridge on which he is the engineer. The bridge is about eight and one-half miles long, and incorporates almost every type of bridge known to bridge builders. The foundations were carried to the unprecedented depth of 230 feet, requiring the construction of a new type of caisson which Mr. Moran, partner of Mr. Proctor, had patented.

A general business meeting of the Chapter was held before Mr. Proctor's talk. John Avery, President of the Chapter, presided."

* * *

New Jersey Chapter News

PASSAIC COUNTY

The regular meeting of the Chapter was held at the Elks Club, 29 Howe Ave., Passaic on Thursday, October 26th.

An address on "Topics of Current Importance" was delivered by Gerald W. Knight of Newark.

Preceding the meeting an informal dinner was held in the dining room of the Elks Club.

Engineers residing or practising in Passaic County should be interested in the affairs of the county and with proper support the Chapter can become a medium for giving expression to the needs of the community.

Address I. Levine—Secretary,
5 Colt Street, Paterson, N. J.
Tel. Sherwood 2-3408.

* * *

UNION COUNTY

The Union County Chapter held its first meeting of the Fall season at the Eleanor Restaurant, 1165 East Jersey Street, Elizabeth, N. J., on Tuesday, October 10th, 1933.

After a beefsteak dinner, two very interesting reels entitled "The Story of Bakelite" were shown.

At the business meeting, a resolution was passed to the effect that the Union County Chapter sponsor the enactment of legislation to place municipal engineers under the propriety of the "Tenure of Office Act."

After some discussion it was decided to incorporate in the notices for the next meeting a request to the effect that each receiver of the notice indicate whether he is interested in receiving further notices. It was generally felt that considerable saving in the monthly printing and postage bill could be effected by eliminating all disinterested engineers from the mailing list.

JOHN L. MILLER,
Secretary
121 East Third Avenue,
Roselle, N. J.

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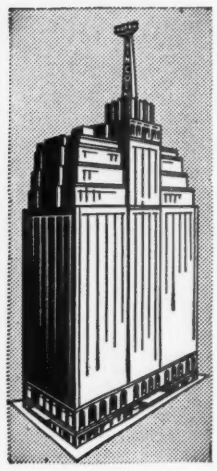

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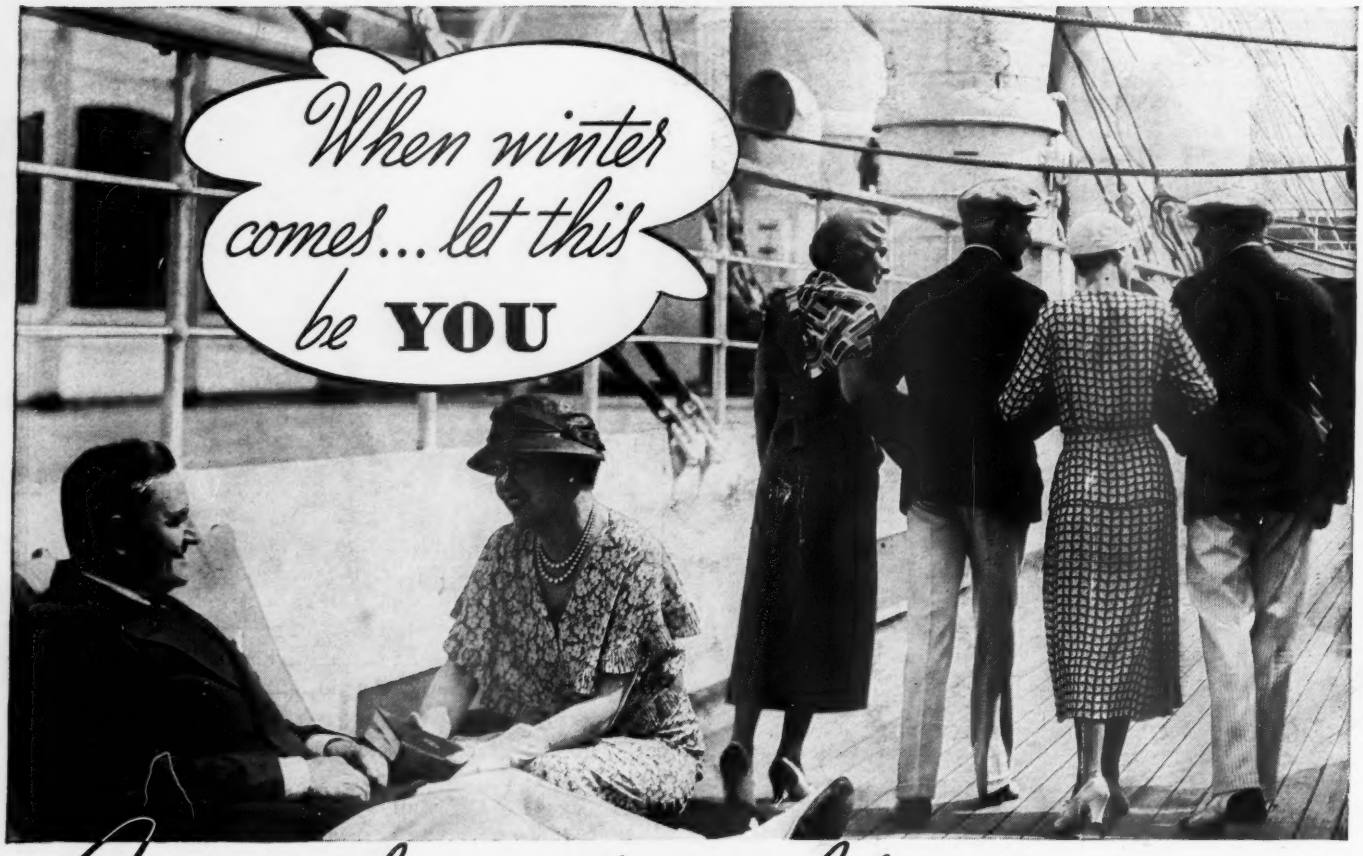

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